# Study of the Programme

## OF

# Audio-Visual Education in teachers' training Colleges in U. P.

Thesis Submitted to the Bundelkhand
University for the Degree of DOCTOR OF
PHILOSOPHY in Education.

Supervisor :

**Dr. J. L. Verma**

M· A., M· Ed·, Ph· D

Deptt. of Teachers Training
Bundelkhand College., Jhansi

Investigator :

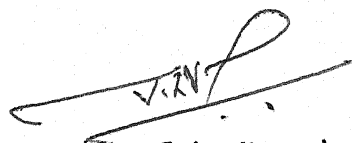**Smt. Rakhee Chaudhry**

M· Ed

**Bundelkhand University, Jhansi**

## CERTIFICATE

Certified that THESIS entitled "**Study of the programme of Audio-Visual Education in teachers' training colleges in U.P.**" has prepared by Smt. RAKHEE CHAUDHRY under my supervision. The THESIS embodies the result of her original investigation conducted during the period she worked.

The THESIS is of the standard expected of a Candidate for Ph.D. Degree and I, therefore recommend that it may be sent for evaluation.

Dated:

(Dr. J.L. Verma)
M.A., M.Ed., Ph.D.
Deptt. of Teachers Training,
Bundelkhand College,
JHANSI.

## DECLARATION

I Smt. Rakhee Chaudhry declare that the present research work entitled "STUDY OF THE PROGRAMME OF AUDIO-VISUAL EDUCATION IN TEACHERS' TRAINING COLLEGES IN U.P." is my own work. This is presented for the Degree of Ph.D.

RAKHEE CHAUDHRY
M. Ed.
Investigator.

# PREFACE

Man's thirst for knowledge has continued from the beginning of civilization. With the down of culture this knowledge began to be classified and organised. It passed from one individual to another and the more informed and more known came to be called 'Gurus'. They learnt from direct experience with the help of their senses, observation and imitation.

In addition to the population explosion the last four decades have also brought forth enormous explosion of knowledge. This has resulted in phenomenal technological growth giving rise to problems dealing with education and employment.

Not only are we faced with the problem of heavy drop out at the primary stage of the school but also with the huge number of children to be enrolled and enormous length and breath of syllabus to be covered through books and lectures. In education print media dominates the teaching-learning process even though there have been innovations of technology such as photo, sound, film, radio and television.

To make a lesson interesting and receptive the teacher should avoid formalism and rigidity in the

lesson plan. Formal lesson plans are based on an outmoded psychology and an unsound pedagogy. Such plans do not develop the capacity for clear thinking or expanding the range of students interest. **J.J. Weber** has rightly said, "The History of Education" records a series of revolts against formalism. The very latest of these is the movement for more concreteness in instruction. The movement has received a special impetus by the perfection of photography, which offers us various media of monifest instructional value. These media are not true realities but they are so realistic in contrast with the abstract nature of language that a question logically arises namely: Will the use of Visual Aids as an integral part of instruction effect ecnomies in the education process ?"

This study has taken the role of pupil teachers to improve the educational techniques and also has tried to answer many questions like - Are our teachers training colleges fulfilling their role in proper guidance to pupil teachers ? Are these resource only available in some measures in the big citites or can we create them at the rural and Semi-Urban level as well ?

As this study is approved by the RDC of Bundelkhand University Jhansi U.P.. So the staff and pupil teachers of Departments of teachers training colleges of U.P. are involved in it. Workers, instructors and adult education Centre Staff also go together for the final study conclusions. Many interesting view points emerged which are presented in this study. It however does not answer all the questions perhaps only a few. In fact one hopes that it raised more questions than it answered.

With a very limited time and means a single study of this nature attempts to cover all the aspects of the programme of Audio-Visual Education in teachers training Colleges of U.P. The present study, as such is only a passing analysis. All endeavour has been made to substantiate the facts with available objective date secured from different sources to submit an overall picture of these havenots.

Due credit has been given to all the informants in this report while it is intended at this point to acknowledge the indebtedness to them and apologize omission, if any.

# ACKNOWLEDGEMENT

Education is a life long process, responsible for socialization of the new generation. All aspects of education should be questioned for thier relevance in the curriculum. Long established activities can become a tradition or habit but not necessarily fulfil the needs of Children.

A study of this nature and magnitude can not be successful without the co-operation put in by some of my friends, teachers and relatives.

The very first name which deserves a thankful mention is that of my guide **Dr. J.L. Verma** as he inspired me to work on this topic and also gave full co-operation and guidance to complete present work.

My deepest gratitude is due to **Dr. Y.K. Gupta (D. Lit)** Reader, Department of Teacher's Training, Hindu College, Moradabad. Who inspite of many handicaps associated himself in arranging interviews, location etc. which provided first hand information that was essentially needed for this investigation.

I am also grateful to **Mrs. and Dr. A.K. Chaudhry** Deptt. of Botany, Hindu College, Moradabad, **Dr. Balendu Sharma** Deptt. of teachers' training, Hindu

College, Moradabad, **Prof. J.P. Agrawal**, Ex. Head of the Deptt. (Economics) S.M. Degree College, Chandausi, **Dr. J.P. Tiwari**, Head of the Deptt. (English) and **Prof. R.K. Bansal** Ex. Head of the Deptt. (English), S.M. College, Chandausi who had worked with me in compiling all the information from the beginning to the end.

My deepest gratitude is due to my father **SHRI SUBHASH CHANDRA CHAUDHRY**, My brother **Mr. Atul Shanker Chaudhry** and sisters **Km. Preeti** and **Km. Garima**. During the course of my field work, the difficulty in collecting and tabulating quantitative data, solved my problem by their wits and tact which made me highly indebted to them.

I like to mention my thanks to **Er. Alok Kumar Agrawal (Husband)**, **Shri Ishwari Pd. Ji Agrawal (Father-in-law)**, **Dr. Dinesh Chandra Agrawal (brother-in-law)** and **Mrs. Poonam Agrawal** for their continuous encouragement to me in pursuing higher studies after the marriage.

I like to mention my thanks to Adult Education Officer, Bareilly who has been very kind to discuss the salient features of the study with me and readily provided many items of information.

My sincere thanks are also due to all the librarians of different Colleges and Universities. I am also thankful to the the **Typist** of this work **Mr. Vijay Kumar.**

This list of well wishers, helpers and guides to whom I am indebted can not be complete, if I do not make a mention of more than 30 Principals and Heads of Deptt., 100 lecturers and 800 pupil teachers of teachers training Deptt. of various colleges, without whose co-operation, friendliness and enthusiasm this study would not have been possible.

I am grateful to them and wish them a better future.

RAKHEE CHAUDHRY

# CONTENTS

Introduction :-

Education throughout the world is beginning to receive the attention of all those who are concerned with the problem of development. The 20th Century has witnessed two world wars leading finally to the emergence of a large number of countries out of colonial domination and exploitation. The countries from whom they got their freedom are more advanced than they are, and they keep on advancing whereas others are struggling against various handicaps of poverty and backwardness. They are the so called developing countries whose political independence is not supported by economic independence and most of these countries of which India is one, tend to consider development only in Economic problems, But it is worthy of note that the value of education for economic development has received more support from the economists than from educationists.

Ever since Independence, removal of poverty has been our national goal and it still remain the number one national goal. All our plans have aimed at increasing the rate of growth of the economy through various kinds of inputs and mechanism. Education although conceptually was linked by the Education

commission to economic development, has remained in the Social Services sectorof plan instead being at the core.

It is natural that education should receive much greater attention from development planners than it had in the past. In our country the education commission of 1964-66 in their report linked education to development. For the first time in India, in an economic and manpower frame work, education was linked to employment, employment to productivity and productivity to national development. This process is gone through like this :-

Education ----Employment ----Productivity ---- National Development

Since the development of modern educational institutions, printing is the major technology used in preparing learning material but in recent times, technologies like slide and film projectors, Overhead projectors, tape slide programmes etc. are also used for teaching in the form of Audio-Visual education.

The technology in education embraces all possible

means of presentation of information. Audio-Visual media like audio-cassettes, radio, television, video Cassettes, Computer etc.

Since the primitive stage of men, the methods of communication have under gone various changes and are known by different professional terminologies as Multisensory aids, Visual aids, Visual education, Visual instruction, Mechanised teaching, planned instruction, instructional material etc. Reviewing the early efforts made in the audio-visual education movement is "IBID". This was probably the first illustrated book written especially for children with the development of Science and technology, Old communication techniques have been improved and new ones are being developed.

The use of communication techniques has become most common and necessary in the process of education since the inception of human civilization. However it is often quite slow to employ new and improved methods for the transmission of ideas on the process of education. Even after the invention of paper and printing, lectures and manuscript notes prepared by the teachers were thought to have some pedagogical

superiority over the products of the printing press.

The educational institutions from the kinder garten stage to the University stage are the major contributors in the development and preparation of the child for successful living in the future complex Society. Hence, the programmes for them should be organised for creating better learning situation by the use of modern instructional technology. Babcock emphasis this point by saying, "Children are important, their time in school is important, we have no right to be reckless with either one think of the potential power of these new media in the acculturation of a generation which have no choice but to live in a world in which the people on the most distant continent are next doorneighbours."

Thus the significance of mechanised Audio-Visual aids in modern education is well recognised. The educationists in India have also recognised the importance of Audio-Visual tools in modern education.

Audio-Visual materials must be used not as an entertainment or an extra, but as a context vitally related to the contemplated learning and calculated to

help that learning. The great advantage of using such material is that it helps to organize learning in a concrete setting - a setting of actual hearing and seeing rather than of mere talk. These aids become devices or procedures that help to make learning more meaningful, more interesting and more effective. This is very important in the present times when the curriculum is quite crowded and new activities are being suggested to be included in the present day work.

The teacher training institute are facing today the spectrum of new social, physical and technological development which necessitate constant re-evaluation and continuous re-adjustment of the curriculum and training programmes offered by them.

As a result of the changing needs of the Society, the teacher education institutions are called upon to provide suitable training in the use of modern instructional materials to the teachers in general. To provide such type of training Audio-visual education to all teacher trainees, the teacher education institutions should have experts in the Audio-Visual education.

The teacher education institutions therefore, are the training centres for such specialities in communication. The experts in Audio-Visual Education in the training colleges should serve as the models of modern teaching technology so that the teacher trainees may get an oppurtunity to observe the proper use of the various instructional devices. This observation will motivate the teacher trainees to use Audio-visual materials properly in their practice teaching finally they will get the first hand experience of an ideal use of such materials in their practice teaching under the guidance and supervision of the experts. The idea of the new media of teaching to be provided in the training programmes of the teacher education institutions.

The success of the educational institutions depends upon the efficiency of their teachers. The efficiency of the teacher depends upon the quality of training they receive in the planning for teaching including the use of modern instructional materials. These has been a rapid increase in the primary and secondary schools in India during the last two decades. This increase is justified when the percentage of

illiterate persons is very high. However a special case is needed to see that the standard of teaching does not determined when educational facilities are expanded.

Properly trained teachers and the latest instructional methods are two important aspects in up grading the standard of teaching. For this purpose one of the things which is of paramount importance is improving the existing primary and secondary teacher training institutions and creating new ones on the modern lines. The improvements and future developments in the teachers training institutes require the study of their existing training programmes especially in respect of the Audio-Visual Education programmes because the proper use of the latest instructional techniques increased the efficiency of the teachers of all subjects. The present study is under taken with a view to evaluating the Organisation of Audio-Visual education. Arising programmes of the secondary teacher training programmes of the secondary teacher training institutions in India so that they can be reoriented in terms of the need of our times.

In the modern age we are having our new 20 point

programme having a special attention on point 14 to erradicate illiteracy under N.A.E.P. It is very essential to identify the relevent needs and problems at the individual house-hold, community and block levels which could form the basis for developing an adult education programme through Audio-Visual education.

(a) **THE PURPOSE OF THE STUDY** -

Purpose of the study is to have a critical evaluation of the Organisation of Audio-Visual education training programmes in the teacher training institutions in U.P.

The main aim is to study the present set-up of Audio-Visual educational programme and the kind of training oppurtunities of Audio-Visual education given to the teacher trainees in the teacher training institutions in U.P.

The Specific objectives of the study in relation to the problem stated above are as follows :-

(1) 20 determine objectives of the Audio-Visual education training programmes implemented by the teacher training institutions.

(2)    20 Survey on following organisational aspects regarding the Audio-Visual education training programme offered by them -

    a) Curriculum Construction

    b) Staffing Pattern

    c) Training Activities

    d) Selection of candidates for Audio-Visual Education as Special field.

    e) Evaluation of teacher trainees

    f) Availability of Audio-Visual aids and Equipments.

    g) Research and publication in the field.

    h) Financial implications.

(3)    To make an objective appraisal of the present Audio-Visual education programmes and to develop criteria for determining the position of teacher training institutions with reference to their Audio-Visual programmes.

(4)    To suggest some measures for improving Audio-Visual education training programmes with a view to preparing competent teachers equipped with proper skills in teaching methods.

**(b) CURRICULAR NEEDS FOR AUDIO-VISUAL AIDS -**

    The Curriculum in our teachers training

institutions is broad based these days and to meet the needs of a broad curriculum. It is essential for a teacher to have an adequate knowledge and experiences, about the use of different types of materials, fundamental principles and techniques of utilization of these materials, of some reliable methods of evaluation. However the audio-visual materials alone can not accomplish the task of education. Such materials only suppliment the teacher who always remains the main pivot of the class-room teaching. Therefore it is most desirable for a teacher to be clear about his teaching objectives and the right use of the right material and at the right place and at the right hour.

## (c) RETROSPECTIVE BACKGROUND -

Audio-Visual Education in India has a long past. India was educationally much advanced when Europe still groped in the dark. The study of thirty two sciences including medicine, chemistry, astronomy, Music, Military Science, Yoga, Art and Painting etc., made other nations look to her with respect and admiration. India, as I have already stated, has a rich heritage of architectural beauty, paintings, sculptures,

Calligraphy, Drama and Ras-lilas, all of which were potent factors in the spread of knowledge and education. The pictures in the caves and the priceless writings on Bhoj Patras can vie with early hieroglyphics of the Egyptians and silk writings of the chinese. Under the successive foreign rules the store houses of knowledge in the country were either burnt or destroyed and knowledge passed on from mouth to mouth and the means of its dissemination degenerated to a low level.

In recent times, the financial difficulties, too much emphasis on the foreign language and consequently learning by rote and the absence of electricity, particularly in the villages stood in the way of teaching aids.

The pioneer work of Audio-Visual Education was done by the State of Bombay in 1920 and they had a full fledged department of Audio-visual Aids in 1947. During 1940-45 the Government of India had made a few war propoganda films. The Audio-Visual section of the Ministry of Education, Government of India, had its early beginnings in 1942 as an adjunct to the library of the central advisory Board of Education, now known as the Central Education library. In the begninning it

had in stock only 44 silent films and four silent film projectors, purchased possibly from the Ministry of Defence. These were put to occasional use in arranging film shows at Delhi and Simla. After Independence the national Government realised the importance of films in Education. In 1947, the section came into its own as a Central Film Library on the basis of the five year plan, as part of the Post-War Educational Development plan of the Government, A great deal of progress has been made since then. A number of conferences and seminars have been organised by the Centre as well as the states and their valuable suggestions and proposals have been implemented to a large extent by the Union Ministry of Education.

REVIEW OF PROGRESS MADE -

A provision of over a lakh of rupees was made in the budget during 1948-49, the first year of the plan, out of which a sum of Rs. 80,000/- was earmarked for the purchase of films, Rs. 12,000/- for film equipment and Rs. 15,000/- for expansion of the staff of the unit. About 241 films (16 mm) and film strips (35 mm.) of educational character were purchased, besides film equipment consisting of film projectors and other

material necessary to a film unit.

In January 1948, the All-India Educational Conference and the meeting of the Provincial and State Directors of Education discussed visual education among other subjects. Both the bodies stressed its importance and endorsed the plans of the Education Ministry of building a Central Film Library and of assisting the provinces and states in formulating their programmes of visual education.

To fully investigate the problems of visual education in the field of Primary, Secondary, University and Adult Education an ad-hoc Committee on visual education was formed and the Committee held its meeting in July 1948. The main recommendations of the Committee were that visual education might become an integrate part of our teaching system in course of time. As the implementation of such recommendations implied a good supply of indigenous educational films, the Ministry sought to encourage private enterprise in this field as much as possible. In a press note issued in April 1949, the Ministry offered its technical advice to all private producers for the scrutiny of scripts

whose production may be undertaken by them at their own expense. The Ministry also offered to preview finished films and if any film was approved the firm concerned would be authorized to mark it as having been approved by the Ministry of Education, Government of India. The press-note awakened considerable interest but not many producers actually came forward to take up actual production work. The producers wanted a guarantee for the sale of a minimum number of prints of each film to enable them to cover production costs, which the Government was not able to give.

It was, however, realized that the film was not the only or even the most important form of audio-visual aid and that it was necessary to expand the sphere of activities of the Ministry in this field. The film unit was accordingly renamed the Audio-visual Aids Section in 1950 and it undertook a systematic collection of film strips, charts, posters, maps, etc.

In October 1951, an All-India Conference on Audio-Visual Education was organized by the Ministry, in which the state Governments and some other representatives participated. The conference was held on the occasion of the visit of Prof. T.L. Green who

had been invited by the Government in connection with the development of Audio-Visual Education in the Country. Various problems of Audio-Visual Education including the availability, preparation and production of audio-visual aids, apparatus and equipment by educational institutions and commercial firms, distribution of these materials, training of teachers and technical staff and the establishment of a National Committee for Audio-Visual Aids in education were discussed at the confernece.

The conference drew up the following "action points" for implementation :-

(1)  Establishment of a Board of Visual Education which has representation of educationists, teachers technicians and others interested in this field to consider general policy and programme.

(2)  Appointment of a whole time officer in each State Education Department for developing Audio-Visual Education.

(3)  Organization of exhibitions in different centres to popularise the use of and clarify ideas about visual education.

(4)  Training of teachers in visual education through Training Colleges and refresher courses, special

stress being placed on how to use aids.

(5) Establishment of co-operation between teachers, educationists and commercial concerns for the production of visual aids.

(6) Use of training colleges and schools both staff and students for the productionof suitable Audio-Visual Aids.

(7) Need for intelligent guidance in order to improve the standard, quality and variety of production.

(8) Setting up in each State some type of educational museum where childrens books, journals and all types of visual aids, national and foreign, may be available for consultation and study by all concerned.

(9) Exploration of the methods of producing projecting instruments as well as visual aids economically and encouragement of inter-state Co-operation for the purpose.

(10) Proper Co-ordination and use of educational broad-casting.

(11) Exemption from duty of Audio-Visual Aids imparted for educational institutions.

These recommendations were brought to the notice of State Governments for their consideration and necessary action and the response had been very encouraging.

In pursuance of the first recommendation made at the Audio-Visual Education Conference held in October 1951, the Ministry of Education had set-up a National Board of Audio-Visual Education to co-ordinate the work being done in the country in this field and to advise the central and State Governments on all matters relating to Audio-Visual education in the country. The first meeting of the Board was held in 1953.

Later on, the Ministry of Education organized a seminar conducted by four experts, whose services were obtained through the Unesco for training selected persons in methods of production of simple visual aids. The first seminar was held in Delhi at the Central Institute of Education in 1954. Training was imparted in different Techniques of producing filmstrips, posters and charts useful in basic and social education programmes. Another seminar, organized jointly by the

Governments of India and Australia under the Colombo Plan, was held in Lucknow in 1955.

The National Board for Audio-Visual Education in India, in its second meeting held in 1955 approved of the following schemes for the development of Audio-Visual Education proposed for the Second Five Year Plan :-

(1) Establishment of State Visual Boards.

(2) Introduction of Audio-Visual Education in Teachers Training Institutes.

(3) Establishment of films and film strip libraries on a statewise basis.

(4) Supply of Radio-sets to schools.

(5) Production of 35 mm. flim strips.

(6) Research in the evaluation of films in education in co-operation with some select institutions.

(7) Encouragement to private producers in the production of visual aids and equipment.

(8) Publication of a journal or periodical on Audio-Visual Education.

The Union Ministry of Education has also set up

film units at the Documentary Film Production Centre in Bombay for the production of a number of special educational films. The Central Film Library with a membership of 1,301 now stocks over 3,475 films (16 mm.) over 2,000 film strips (35 mm.) and many charts and posters. These films are extensively used by many educational and other organisation in the country. In 1959 the Central Film Library handled 7,969 films and 133 film strips.

A quarterly journal, Audio-Visual Education has been started to faster interest in the use of Audio-Visual techniques among teachers and social education workers. The National Institute of Audio-Visual Education has been established in January, 1959. The short term training course started in February 1960. It functions as a training, production and research centre and as a clearing house for information relating to Audio-Visual Education. The production of prototype instructional material has also been under taken. Seminars for the training of Audio-Visual workers are being organized by the Central Government and the states. More and more educational films are being added to the central library for use in

schools and colleges. The forth meeting of the National Board for Audio Visual Education was held in December 1959. The material produced by the unit for the production of Non-projected Visual Aids was exhibited on the occasion.

In the All-India Educational Conference held in 1960 further stress was laid on the importance of Audio-Visual Education. It was recommended that every teacher should receive special training in the use of these aids to make education realistic and life-like.

(d) <u>SIGNIFICANCE OF TRAINING IN AUDIO-VISUAL MATERIALS FOR TEACHING TRAINEES</u> -

With the growing impact of modern instructional materials the concept and media of Audio-Visual education need greater emphasis in our Country today. One of the major functions of teacher training institutions is to create conditions for enriching and revitalishing the curriculum and educational process with the techniques and materials of audio-visual instructions. Thus it becomes necessary for a training college to provide training in the preparation and utilization of some of the popular Audio-visual aids.

The training College should also look to the progressive development of in expensive teaching aids with indiginous materials. Teacher training collges are also expected to make some experiments with regard to their utilization under existing local conditions. Briefly speaking teaching is an art of communication. The B.Ed. deptt. have to provide leadership in improving the techniques of communication. The present investigator proposes to study whether the training college of U.P. are making any contribution in this direction. She will also make suggestions to improve in this direction.

# CHAPTER - 2

## Statement of the problem -

The proposed work "Study of the programme of Audio-Visual education in teachers training Colleges in U.P." studied in a limited field i.e. in some prominent colleges of a few universities like Meerut, Kanpur, Rohilkhand and Bundelkhand. It is essential to explain the meaning of some terms and connotation in which they are used in this thesis :-

### (1) Critical Study-

It means in the context of this Study a Complete assessment of three phase only :-

(a) Implementation of the objectives of Audio-Visual Education training programmes.

(b) Organisation of the Audio-Visual education training programmes in view of the objectives.

(c) Appraisal of the training programme in Audio-Visual Education as well as the trained teachers in view of the Objectives.

### (2) Organisation of Audio-Visual Education training Programme -

This refer to a process of training programmes based on the Specific Objects of equipping the

teacher trainees with the skills of methodical teaching with Audio-Visual aids and the understanding of various aspects such as curriculum construction, Staffing pattern, training activities, selection of Candidates for Audio-Visual education as special field, evaluation of teacher-trainees, research publications and finance involved in the entire training programmes.

**(3) Audio-Visual Education -**

The meaning of this term here is as follows :-

It is a branch of instructional technology which deals with the production, Selection and utilisation of the instructional materials and handling as well as operation of Audio-Visual equipments.

**(4) Audio-Visual Training of Teacher -**

This term indicates a process of helping the teacher trainees in acquiring the skills for the production, election and proper use of the instructional materials and operation and handling of Audio-Visual equipments.

# CHAPTER - 3

## THE PRESENT STATE OF WORK -

### The research work done in India -

In seventees many researchers who felt inspired by the above developments in fiftees investigated some of the problems connected with Audio-Visual education. PATEL (1971) made a critical evaluation of the Organisation of Audio-Visual education training programme in the Secondary School teacher's training colleges in India. The findings reported in this study were of great educational value, but the Study itself covered a very large area. As such it failed to probe deep into the problems. In this field some surveys were also conducted by KHANNA (1970) AHLUWALIA AND AGARWAL (1970). Khanna's study was mainly confined to use film and film strips in the Secondary Schools of Madras State. USHA SUBBA RAO (1972) made a survey of the growth and development of Audio-visual education in Maharashtra state. This Study had three aspect -

(a) Historical

(b) Discriptive Survey

(c) Experimental

The results of the experiments reveled that the use of audio-visual aids in teaching always produced

better results. Similiar findings had already been reported by GEORGE 1966) who concluded that in teaching of English use of audio-visual aids made the teaching more effective. VORA (1973) also reported that the teachers teaching English had extremely poor choice in respect of use of the instructional materials.

JOSHI (1979) made a survey of University teaching methods and reported that about 72% teachers of Colleges and Universities were interested in the use of Audio-Visual aids. Dr. M.M. CHAUDHRY (1980) stressed the need for the improvement of working Conditions of teachers, Supervisors, improvement in their Status and also involvement of artists in developing low-cost and appropriate materials for education of the child and learner related to his/her environment.

## Dr. (MRS.) R. MURLIDHARAN (1980) -

Included following four points in her Media Laboratory project -

Development of Play materials.

Use of Print Media .

Use of Audio-tapes.

Use of projected aids.

RAM CHANDRAM (1979) (Cape - NCERT) - Stressed the importance of training of teachers for their project in preparing the teaching aids also to identify the local problems and to solve them.

RAMESH KOTHARI (1980) (Community Science Centre Ahmedabad) - finds a significant role of puppets for children in imparting education in nutrition etc. and found very effective.

A. MITAL (1980 - Principal Blind School, New Delhi) - Streesed the importance of compulsory audio-tactile teaching aids for blind Children to help them in create with the environment in a meaning full way and also to develop concept of the phenomenon in the world around them.

Dr. KRISHNAN (1980) - (Indian Institute of Science Banglore), - finds effective the training programme of his institute for high School Science teachers with the help of the State Education Research and Training.

S.P. Ozarkar (1979 - Homi Bhabha Centre For Science Education Bombay) - finds the audio-visual aids prepared by his group, helped the low lingaistic ability Children and provided Self - Study materials

for students.

**MRS. TARA GROVER (1980) Education Resources exchange Banglore)** - finds awareness of High-School Students to issue like poverty and unemployment and also to the values and atitudes implicit in the text books with the help of Audio-Visual aids and also to involve the teachers.

**S.R. MIRDHA (1980 - Birla Industrial and technological museum, Calcutta)** - Organised one year a youth training programme to family arise Children with small scale technology like paper and soap making. The School and Pupil teachers were the participants in making such type of Audio-Visual aids, and finds it useful and meaningful.

**G.S. Rautela (1980 - Nehru Science Centre Bombay)** - arranges 8 to 10 days workshops for teachers during school holidays, to learn how to activate in Children activities with learning of Audio-Visual aids like telescope making, preparation of models of rockets etc.

**Dr. (Mrs.) SARAJ. B. JHA (1982 - Head, Department of Preventive and Social Medicine, T.B. Medical College Bombay)** - feels that audio-visual aids for health

education should aim removing the secracy about the body.

**DR. R.N. ROY (1981 - Murugappa Chettiar Research Centre, Madras)**- felt that the role of comunication was important in following ways :-

(i)   Motivating the learners

(ii)  Acquiring the technology

(iii) Maintaining the technology

**MISS ANGALI MONTEIRO (1981-Audio-Visual Producer - Xavier Institute of Comunications, BOMBAY)** Conducted Audio-Visual Programme activities under the "YATRA PROGRAMME WITH THE MIRACALES TRICKS" included water, everyday astronomy, wild life etc. in three parts -

i)   Indentification of Problem.

ii)  Involve people and initiate a discussion

iii) Develop Audio-visual aids based on traditional stories to question the prevailing faulty and wrong attitudes towards the Socio-economic problems.

**GOLANI (1982)** - Completed his work on the use of Audio-Visual aids in Secondary level School education. To analyse his problem on Principals and Teachers he

used questionaire. He also adopted interview and observation method to callect information. His important findings are as follows :-

i)   Schools which were situated in Urban areas had their own audio-visual aids because they had a sound financial position.

ii)  Only limited number of teachers used audio-visual materials in their teaching.

iii) The Condition of audio-visual materials in the schools were not so good.

iv)  There was no motivation to the teachers with that they were intiate to use these materials.

v)   Schools management could not supply the proper finance and other facilities for audio-visual education purpose.

**SOOD, KUSUM AND SURAJ LAL (1982)** had aim to evaluate importance of audio-visual aids in expansion of education in the colleges of Haryana state. He found in his conclusions that inspite of many difficulties 17% student like this programme.

**SETH INDU (1983)** - concluded her work that to use educational television programme teachers should be

well trained. The teachers of primary schools and the producer of educational television programme should work with the team spirit.

**U. SINGH (1983)** feels that any medium that can able to make learning process easy can also be helpful in gaining good marks. His study indicates that there is positive relationship in medium and class room behaviour.

**SHAH (1984)** - Used Linear programme material on the basis of pre-test and pro-test. He found these programmes were more useful in improving class room conditions.

**DESAI (1985)** - aimed on the following objectives :-

(a) To evaluate achievements of Science students on the two methods i.e. instructional and traditional method.

(b) To Study Comparatively the achievements of Students.

He also concluded in his study that programme learning approach is more effective than the traditional way of teaching in learning process.

**OHAMIJA (1985)**- used three different methods i.e., Radio,television and traditioanl way of teaching in the teaching of Social Science in his Study.  This work be done on thirty students of three different colleges. The Basis of the Selection of Students is their I.Q. The Conclusions of the study are as follows :-

i)    In Geography maximum learning is possible by the radio-vision approach.

ii)   The intelligent Students mainly got motivation by the radio-vision approach.

iii)  In civics modullar approach is more effective for the Students.

iv)   In history result of traditional way of teaching is more attractive.

**GOYAL (1985)** - Completed his research work in organisation and significance of educational television programmes in teaching.  His working field was Delhi, Maharashtra, Srinagar, Jaipur, Raipur and Muzaffarpur. In his study he found that Delhi Doordarshan presented 16 programmes per week.  Out of 16 programmes 13 programmes based on Secondary education, 2 on primary education and one based on teachers training.  The

responses of teachers and Students of Maharashtra State about educational television was positive and progressive.

**KOTHARI (1985)** - This study had been done on two Schools. The students of ninth class were divided in to four groups. Results were so, clear that in instructional technology Visual projection is more effective than Practical programmed learning material.

**SINGH AND UMER (1986)** - Conducted a study on Educational television in Maharashtra State. In his report he feels that lack of finance facility and separate room for television, and electricity supply problem are the main factors that, affects television education.

**BASANT BHADUR SINGH (1994)**- in his project titled "Effectiveness of U.G.C. country wise class-room programmes on models of teaching with inter-active mode and without talk back" felt television as the most effective medium of communication. Television can easily brought audio-visual material to the broad area. At a particular time by television more and more peoples got advantages.

From the a foregoing brief discussion about research efforts in this field in India it may be justly concluded that the reported research findings touched only the fringe of the problem. These studies differed widely in their objectives and covered superflous areas. These findings are hardly of any use as far as their applicability to the School education is concerned.

## PRESENT STATE OF RESEARCH IN WESTERN COUNTRIES -

As compared to research work in India the work done in the west in this field is wide and variable. Since the Western Countries are technologically more advanced, the researchers in this field have mostly explored the scope for application of machines to impart audio-visual education. They seem to be more interested in applying the modern electronic gadgets to the teaching learning situation i.e. a large number of research reports are available about the feseability of Video-tapes either in learning school subjects or in teaching some skills to teacher trainees.

## WETSONTON AND FRIEDLANDR (1974) - Worked on the effect

of life T.V. and audio story, narration, Similarly

## GUTTMANN AND LEVIN AND PRESSLAY (1977) ROHWER (1973),

ROHWAR AND HARRIES (1975) ROHWAR AND MATZ (1975) SERIMRON (1974) had worked on pictures, partial pictures and young Childrens oral prose learning, SAMUELS AND ANDERSON (1973) KEPPLL (1968) BENTON (1962) MONEY (1962) RAVINOVITCH (1962) MONROE (1932) BERNBACH (1967) and MARTIN (1967) find that the visual recognition memory differences reflect degree of perceptual learning and that strategies that facilitate perceptual learning are trainable. Work of SHAPIRO (1976) PARADIS (1974). Shows that visual discrimination training could compensate for impulsive response style in connection with reading readiness materials. The effect of Video-tape feed back on Children's class room behaviour was studied by ESVELOT, DAWSON & FORNESS (1974) CHILDERS (1973) WAIZ & JOHNSTON (1963) STROLLER (1967) MODONALD & ALLEN (1967) SCOTT (1974).

# CHAPTER - 4

## Justification for the Proposed Work -

Education had made great strides in Science and Technology. But inspite of this significant advance all teacher's training institute are not well equipped. The problem has to be tackled both at the macro and micro levels and have to be linked in a total system design. Teacher Education should concern itself with quality. This is a need for matching of teachers expectations in the teaching learning process. In its widest sense teacher education mean curiosity, learning and problem solving about life and environment. The teacher trainee's mind had to be stimulated and audio-visual learning resources would go a long way in doing so.

## Importance of Audio-Visual aids in learning -

Most of the teaching in teacher's training institute is done verbally either through book or by teacher do by a black board. Only when the learning becomes difficult that another way has to be found. It is very relevent that the teachers make use of the teaching aids preparing themselves. There is always an Urgent need on the extensive use of teaching aids.

Teaching audio-visual aids not only save time but enable the teacher to cover more areas of text-expeditiously. The concept can be explained effectively and in less time with the use of Audio-Visual aids.

## Relevance of Audio-Visual aids-

It is important to under-stand as to what kind of audio-visual aids operated or the non-machine operated one's can the teacher's training institute use. Sophisticated aids are not available to the training institutes in view of their high cost involvement. It is therefore also necessary that the aids be improvised and innovated at the grass root level. If so who makes these audio-visual aids the teachers, or the teachers in association with the students ? Both these possibilities have to be explosed provided the aids are mode from the local resources and technology which are many and head discovery in the rural-cultural-artistic environment.

The instructional Audio-Visual aids that is prepared by the pupil teachers must be pre-tested. During pre-testing following questions must be asked, response faithfully recorded and a clear decision made

and implemented in respect of the comments. Observations and findings which are to be considered during the revision of the material.

(1) Does the material serve the needs of curriculum to the students and help to solve the problems and reflect the environment in which the participants live and work ?

(2) Does the prepared Audio-Visual aids encourage discussion and dialogue leading to problem solving and creativity and ultimately to organized Co-operative Community action ?

(3) Does it convey the message it is purposed to convey ?

(4) Are the language, presentation and illustrations simple, direct understandable, greated and interesting ?

(5) What does one understand by the words and learn from the Audio-Visual aids ? What does one see in the picture ?

(6) What words or the elements in an illustration need change what should be the change version and why ?

In this world of terrific speed and quick action, it is desirable that the educational machinery should be so geared up that the fruits of education are made available to children as speedily, effectively and attractively as possible. This can be achieved only if the teachers trainees are saved from the strange-hold of verbalism and by the adoption of such educational methods that make a judicious use of the senses of hearing as well as of sight. Audio-Visual materials were wisely and intensively used at all stages in the training programmes. In India, where teacher-pupil ratio is nearly 1 to 50 and most of the Schools have over crowded class rooms, wide and varied curriculum, the significance and justification of this study need not any further arguements.

# CHAPTER - 5

## BROAD OUT LINE OF THE WORK -

### (a) Objectives of the proposed Study -

The investigator has formulated the Objectives as below :-

1. To enquire into theoritical and psychological aspects of Audio-Visual education in relation to learning.

2. To find out the degree of awareness about the techniques of utilization of Audio-Visual materials in actual teaching process.

3. To find out the degree of awareness about the utilization of computers in teachers training Deptt.

4. To evaluate professional readiness needed for improving and revitalizing learning.

5. To enquire about the skills in preparing simple and in expensive graphic materials.

### (b) Hypothesis -

1. Audio-Visual materials play a vital role in teaching learning situation involving both the teacher and the learner.

2.  Financial, administrative and technological problems of teachers training Colleges in using audio-visual aids.

3.  Comparative study between pupil teachers on the basis of their curriculum or course i.e. correspondence or regular.

4.  There is need for great efficiency in developing simple and cheaper audio-visual materials.

## CLASSIFICATION OF AUDIO-VISUAL AIDS -

In the beginning instruction was natural. The father taught his son how to hunt or fish, the mother showed the daughter how to prepare food. This realistic demonstration was accompanied by language to control learner's thinking. The learning process involved seeing, hearing and doing on the objective side and thinking or reasoning on the Subjectives. The eyes made the situation distinctly realistic, Speech served to give it a meaning, both resulted in a purpose to do and doing brought about mastery. All these activities ties together made the learning as natural as the instruction. In the life of the pre-school child both instruction and learning are still quite

natural. It is only when the child advances in his school work that the situation becomes some what unbalanced. Seeing realities give away to reading abstract symbols.

Learning is so complex in nature that even an experienced educator cannot ascertain the extent to which one or more of the senses are involved. It may be true that in most learning, sense of vision plays a some what larger part than the other sense perceptions but real learning emanates from inter-relationship and Co-ordination among the senses.

The Communication strategy, teaching Strategies and tactics are selected for achieving objectives and generating learning Structure. The audio-visual teaching aids also play a significant role for this purpose. The learning structure can be effectively generated with the help of audio-visual aids and teaching objectives can be achieved easily. The students can be made active and attentive by the use of teaching aids. The research Studies have yielded that a particular audio or visual aids may be used to achieve a specific objective of learning or specific learning condition may be created.

## Characteristics of Audio-Visual aids -

The following are the five important features of Audio-Visual aids :-

1.  It helps in developing perception of learner.

2.  It aids in positive transfer of learning and training.

3.  It facilitates in understanding and comprehension.

4.  It provides reinforcement to the learner.

5.  It increases the retention of the learner.

These are the generalized Statements about the Audio-Visual aids but teacher has to take decision in selecting appropriate audio-visual aids on the basis of Student level and objectives of learning. The most crucial feature of teaching aid is to help in creating appropriate learning structure.

## Type of Audio-Visual Aids -

Initially the origin of teaching aid is from physical Sciences and engineering. The use of audio-visual aids has mechanised the education and teaching-learning process. B.F. skinner comments that our kitchens are more mechanized than education. This statement seems to be true even in our country. The

audio-visual aids are classified into three categories:

1.   Audio-teaching aids

2.   Visual teaching aids

3.   Audio-Visual aids

## 1. Audio teaching Aids -

This type of teaching aids facilitate audio senses and encourage the listening function. The audio-sense is more active by the use of such teaching aids. The audio sense is active in lecture and question - answer strategies. The use of audio aids are to realize the Cognitive and affective objectives and can not be used in achieving psychomotor objectives.

### i.   Radio -

Radio is one of the most powerful and cheapest implements for mass communication.

The potential of the Radio as an instructional aid is being recognised more and more all over the world. Broad casting and education are very closely connected. School programmes ought to be lively and interesting and they should supplement class-room work. Radio is an excellent tool for improving language. A teacher who helps his puplis to a judicious selection of what comes over

the radio-setting suitable standards for what is worth listening to, will work wonders on both their pronunciation and vocabulary.

Programmes on literature, drama and Music, news and documentary broadcasts, radio interviews with eminent personalities - all help in making teaching real and life like. The important qualities of the radio are : (i) Direct and immediate contact (ii) Brings reality into the class-room (iii) Mass medium of instruction. (iv) Brings dramatic feelings in the Students mind.

A well planned broadcast can be an effective way of influencing attitudes and emotions and building interest in what they are doing. Radio has still not reached many remote areas. Let us make the best use of it by reporting recent developments. Spot news, projects and other activities of community welfare. We must make every one radio-minded.

It is however a one sided show but the guidance from the teacher can obviate this difficulty.

ii.  <u>Gramophone</u> -

The gramophone can prove useful in bringing the
voice of great men to the class-room to be heard
on "as and when required" basis and in giving
model readings of poems, stories and plays. It is
a good device for learning correct speech. The
teacher should listen to the record, prepare a
plan for its use and prepare supplementary
material. The advantage of the gramophone over
the radio is that a record can be repeated for the
class or individuals.

The pupils must form "listening habits" - they
must 'learn to listen' and then 'listen to learn'.

iii. <u>Tape - recorder</u> -

Tape recording is becoming popular day by day.
With a recording machine, records of talks
delivered by important persons, useful broadcasts,
Students plays and music programmes can be
recorded for future use. When the person is not
physically present, recording will do the job.
Interviews, forums, special meeting and 'on the
spot' events can be recorded for future use.
Recordings enable us to audit, edit and evaluate
the material before use.

## 2. Visual aids -

These teaching aids facilitate the visual sense and encourages the seeing function. The visual sense is more active by the use of such aids. This sense is more active when teacher uses pictures, maps, graphs, models and line drawing in his teaching activities. The visual teaching aids play a significant role in teaching :- Geography, Physics, Chemistry, Biology and Economics etc. The Geography content can not be taught without the use of maps and globe. The visual aids are most useful and economical than audio aids. Generally visual aids are used most frequently in all teaching situations.

This visual teachig aids are used to achieve the cognitive objectives but affective and psychomotor objectives can also be achieved.

### i. Black Board -

Black board is the oldest and the best friend of a teacher. It encourages Students' attention and participation in class work. A good teacher makes extensive use of the black-board during his teaching to vitalize and enrich instruction.

The teacher should use the black board and follow the principles underlying the use of such boards. Boards are of various types :- Easel, Roller, Graphical and Magna.

The use of Black-board in class teaching creates an informal atmosphere and motivates learning. It is of great help in planning, crystallizing main points and summarizing and reviewing results. Due consideration must be given to the size, colour and quality of a board. Black boards are useful for direct teaching.

ii. **Bulletin Board** -

It is a teaching aid of extensive usage and standing. It is mainly used to inform students, to influence their behaviour and to motivate them to action. A well-designed and planned board is an effective instrument of instruction. A good display put up many days before a lesson or demonstration Stimulates interest and prepares the class for what they will observe. The Material displayed should have :-

(a) Unity and simplicity

(b) Attractive layout

(c) Colour harmony

(d) Appropriate captions

(e) Centre of interest

iii. <u>Charts</u> -

A chart is the easiest and most convenient form of visual aid to make and arrange for.

Charts are not new to the class-room, for many generations these have been used to teach reading and writing. Alphabetical and literacy charts are quite popular with the tiny tots. Charts show information in lists, pictures, tables and diagrams. They show and explain the flow of events in a certain period, express a product and symbalise matters graphically.

iv. <u>Posters, Display boards and Exhibits</u> -

This form of teaching aid is very useful in vocational and technical education. Such type of aids inspire teaching and intensify educational effect. These displays deepen the Students' interest and set them thinking. These can be adoptable to every teaching process - Inductive, Deductive, Concentric or Heuristic. A poster demonstrates vividly and clearly one single idea at a glance. Its essential features are -

i) Brevity

ii) Idea or a feeling

iii) Simplicity of lay out

iv) Efficient use of colour

The class-room becomes a beehive of activity when it has got sufficient types of display boards to be used at appropriate occasions. Display boards can provide a good introduction to a new Subject. At the same time such boards are adoptable to any teaching device - may it be formal presentation, individual instruction or students' project.

v.  **Maps and Globes** -

**The Map** -

It is a visual aid that provides experience through sight only. These help the students to visualize and localize important world realities and reveal an enormous amount of information, sizes, shapes and location of areas, distribution of people, land, water, animal and vegetable life, economic and industrial resources and other natural phenomena and the association of many of these elements. We call maps as 'Encyclopedia of

Man's Existence'. The use of a map adds reality to the lesson and makes the subject matter interesting as well as instructive.

vi. <u>Globe</u> -

Globe can be used to show clearly the Earth's movements to demonstrate changes in time, to teach latitude, longitude, Earth's rotational effect and other basic principles of Geography and History.

The Globe can be used to show facts and figures that are impossible to be appreciated on a flat map. Globe should however be supplemented with related materials e.g. diagrams, pictures and Charts. The teaching of Geography becomes effective and realistic by the judicious use of a Globe.

vii. <u>Pictures and Models</u> -

Pictures enable us to conquer the walls of space and time. Pictorial material on various countries like England, U.S.A,, Russia, China, Middle East Countries brings these places into the Class-room to clarify and enrich children's experience. Through pictures many things are brought to us

that formerly were seen by a few.

viii.  **Museum** -

The museum is generally acknowledged to be a special and unique contribution to teaching. These are store houses of world's price less assets. The accumulations of scientific technical, artistic and cultural materials are of immense help to the student to understand and digest his Class-room work. We can achieve spectacular results if there is closer relationship among the museums, the public and the schools. Museums are good means of socialisation and community development. School museums should be properly organised, reinforced every now and then and well looked after. The museum should not be considered only as a store house of objects, Specimens and models but an educational institution in itself. It should act as a source of dissemination of knowledge and purposeful activity.

ix.  **Lantern Slides or Magic Lantern** -

These are the oldest forms of projected pictures. A photographically sensitive glass plate 3¼" by 4" may be used to record the positive pictorial

image. 'Two by two' slides usually consist of individual positive transparencies on 35 mm. film, marked and mounted in card-board or between glasses. These are often used in public lecture to illustrate various points.

x. <u>Flat Pictures</u> -

Flat pictures from illustrated magazines, diagrams and charts of small size can be projected by the means of an opaque projector and shown to the Class-room whenever required. The projector will project and simultaneously enlarge directly from the Original all kinds of written, printed or pictorial matter in any sequence desired. Collection of still pictures are valuable not only for presenting information but also for developing powers of observation and description, stimulating interest and promoting growth in inference and awareness of inter-relationships.

xi. <u>Film-strips</u> -

Mr. Eugene fan of UNESCO, speaking on Audio-Visual project in China in 1949 has given the following description of the actual use of film strips and slides.

"Film-Strips and Film-Slides are the main features of our evening programmes. They are the best advertisement of our work and whenever an announcement is made that there is to be a show of Film-Strips, crowds of people are sure to be there. The advantages of the film-strips and film-slides are manifold." Some of which may be mentioned :-

1. The film-strips are usually shown in the evening when the country people are free to attend meetings of entertainment.

2. Since the pictures are presented on a large screen, they are clear and easy to look at.

3. The story is rendered much more interesting by a commentary accompanying the film-strip. The commentator tells the Story step by step in such a fascinating way that people sometimes forget themselves and feel as if they were a part of the Story.

4. Most film slides are actual scenes photographed of the out-door clinics, such as vaccinating a small child during a vaccination campaign, examining an

old man's eye for trachoma treatment etc. In
certain ways, people like these slides better than
the story film-strips because the former show the
actuality but the later are nothing but
imagination 'composed' into a story. The film has
long been regarded as a suitable means of
spreading culture among the masses.

xiii. **Teaching Machines** -

About 1915 and for approximately the next fifteen
years, Sidney L. Pressey developed and used
machines for teaching and testing. In 1926-27 he
produced the Drum Tutor which underwent successive
modification. It was a teaching and testing device
that presented a question until the student
responded correctly the number of times for which
the machine was designed. The student selected
his response from multiple-choice alternatives by
pressing one of four response keys. Thus one of
the first teaching machines was reported by Sidney
Pressey of Ohio State in 1926.

A teaching machine or auto-instructional device is
form of apparatus designed to be operated by an
individual Student. There are many types and

varieties of teaching machines, but all of them have the following Characteristics :-

(a) The student is presented with a question or problem by some form of display on the machine.

(b) The student is required to respond correctly i.e. he must do something about the problem such as writing and answer or pushing a button to show an answer.

(c) The student is informed, one way or another, as to whether his answer is right or wrong and in some cases, why he is right or wrong.

(d) Often an account is kept of the response to each item not for testing purposes, but for teaching purposes.

(e) The content to be taught is analysed and developed into a programme. The programme is the series of items which is presented to the student in the form of blanks to be filled in.

(f) The programmes are designed, taking into account a theory of learning, the nature of the student for which the programme is being designed, the Subject-matter to be worked on.

(g)     The thoughtful teacher should understand something
        of the different concepts of programming.

## Characteristics of Teaching Machines -

Teaching   machines   or   auto-instructional   have   the
following important features :-

(a)     These are used to present instructional material
        systematically.

(b)     Teaching machines provide the oppurtunities to
        respond or answer overtly.

(c)     It provides the situation to check or confirm of
        his response.  There is no scope to copy down the
        response.

(d)     Teaching   Machines   can   provide   continuous
        reinforcement to the Student.

(e)     These machines also prepare the record of Students
        learning and responses.

(f)     Different types of instruction can be presented
        through the teaching machines.

**Uses of Teaching Machines -**

1.  Teaching machines orient toward the automation of teaching-learning process.

2.  Teaching machines function like tutorial instructions. These machines compensate the individual differences in the process of learning.

3.  Teaching machines provide the well defined and well structured learning situation for desired behavioural change or modification.

4.  Teaching machines provide the continuous reinforcement to the the learner while he reads the material.

5.  Teaching machines create the situation in which a student learns by doing.

6.  A learner can not copy down the correct response while the material is presented through teaching machines.

7.  Teaching machines assist the teacher and make his task more simple.

8.  Teaching machines are also used for testing the Student's learning outcomes or their achievement.

## Limitations of Teaching Machines -

Teaching machines are very important in process of teaching, learning but they have the following limitations:-

1. Teaching machines are costly, economic conditions of our country can not afford to purchase teaching Machines.

2. Teaching machines can be effectively used for presenting the programmed instructional material which is not available in our country Programmers have developed materials by selected topics for their experimental purpose not school syllabus.

3. Teaching machines can be used for developing attitudes and values (affective aspect) among the learners. The cognitive objectives can be achieved by teaching machines.

4. Programmed text and Scrambled text books are economical than teaching machines. Research Studies have found that both are equally effective from learning point of view.

5. Adjustive devices for compensating the individual difference can be presented through teaching machines. Programmed text can be used easily.

6. The bright Students do not like to read through teaching machines, because they are boring to them. They have also follow the same linear path.

3. __Audio-Visual aids__ -

These teaching aids are used to facilitate both audio and visual senses and encourage listening and observing functions. Thus these aids involve more than one sense simultaneously and the learner is more active. This is most effective and useful than earlier aids. The learning Structure can be generated more easily and comprehensively. These aids develop the perception of the learner whichis the basis for the understanding of any concept. Television, films are the examples of audio-visual aid. These are costly and rarely used in teaching learning situation.

The audio-visual aids can be used to realize the cognitive, affective and psychomotor objectives of learning.

i)    __Dramatisation__ -

One of the great watch words of childhood is "Let's pretend". The teacher who takes

advantage of this innate impulse discovers that Children make a whole-hearted response to any dramatic approach to whatever subject is to be taught. A good many teachers are quite aware of the children's flair for drama. The educational possibilities of dramatic methods are relevant to practically any subject in the school curriculum. The drama is being recognized as a powerful educational tool in the hands of the teachers today.

The teacher should ensure that the play is the best means of getting the idea across. He should also find out what other methods or devices can be introudced to make the dramatisation effective and useful. First "Plan the Work" and then "Work the Plan".

ii)     **Television** -

It was August 15, 1959 when T.V. services were launched in Delhi for the first time in India. But it took shape of educational instructional medium in 1972 in 2nd five year plan when the use of Audio-visual aids was emphasised.

T.V. is the only medium which can reach out to a vast number of illitrates in a persuassive and readingly understandable form of communication.

It is difficult to demonstrate any experiment through correspondence or Radio or in other medium of distance education but through T.V. We can impart education of practical subjects also. The students would watch the experiment on T.V. and will try themselves to carry on the experiment by their own. In presentation of a lesson on T.V. a question followed by the answers from the invited students works as a feed back to the watcher Students. Instructional T.V. can play a vital role in teacher's training institutions.

## SATELLITE INSTRUCTIONAL TELEVISION EXPERIMENT -

Television telecast has limited range but by using Satellite its range has been extended. Satellite Instructional television experiment or in short SITE was launched on August 1st 1975 and it covered 2330 villages of six states, namely Andhra Pradesh, Bihar,

Madhya Pradesh, Karnataka, Orissa and Rajasthan. The programme were telecasted in morning and evening every day.

There should be three main focuses of SITE Prgoramme:

1. To develop instructional skills.
2. To develop right type of attitudes towards education.
3. To develop desirable habits among children.

## CLOSED CIRCUIT TELEVISION (CCTV) -

It is the recent development and innovation of media communication in the field of education. The signal is sent to the receiver using Co-axil Cable in CCTV programme and the range depend on the length of the Cable. The CCTV can be used effectively in educational institutions. It has the following advantages :-

1. It increases the range of instruction for or more location beyond the classroom.

2. It enables educatioanl institutions to present televised instruction according to their own needs and requirements.

3.  It magnifies exhibits and demonstations which are normally difficult to observe in a Class-room teaching situation.

4.  It provides the opportunities for exchanging teachers and causes between one institution and another linked to a circuit.

5.  In teacher teaching institutions CCTV with video tape recorder can be used for providing the feed back to the public teachers. "Micro teaching can be effectively used by using CCTV with video-tape.

6.  In developing countries CCTV is being used in medical colleges when an operation is being performed. It can bring the world of reality to the home and to the classroom.

## LIMITATIONS -

It has the following limitations :-

1.  It is a one way communication.
2.  There is no personal contact with the teacher.
3.  It encourages the passive form of learning than active seeking.
4.  It is very costly and complicated, an average teacher can not use it.

iii)     <u>Cinema or Films</u> -

The cinema is making tremendous progress and contribution to every aspect of modern progress e.g. Science, education, health and . industry.

Films do a great deal of good, first by making the people think and second by giving them a solution to a problem confronting them.

Many different languages and dialects are spoken, written and understood by our vast family of peoples. In the task of raising the level of Culture and education of India's 80 Crore people, movie films and pictures play a unique and tremendously important part. Two recent interesting developments are 'Microfilm book' and the 'talking book'. The importance of the film can be depicted in the words of Pudovkin - "The film is the greatest teacher because it teaches not only through the brain but through the whole body."

iv.     <u>Education by INSAT (Indian National Satallite)</u>

The Indian National Satellite 1-B was launched

Aug. 30, 1983 and become fully operational from Oct 15, 1983. INSAT programme have two distinct features - (i) Direct telecast (ii) National notworking using existing terrestrial transmitters. Specific clusters in six states - Andhra Pradesh, Bihar, Gujarat, Maharashtra, Orissa and Uttar Pradesh have been selected on the basis of backwardness of areas, availability of suitable infrastructure and utilisation of existing television facilities.

It is cheaper substitute of educational T.V. and the programme can be used on number of occasions.

4. <u>Computers</u> -

Computer is included in the hardware approach of educational technology. It is one of the machines of automation in teaching and learning. It is used for presenting the individualized instruction. It is also used in commerce, trade, industries and administration. The computer services are very common in research for data processing and instructional purpose.

Computer is known as electronic brain. The computer services take the decision about for instructional material according to the entering behaviour of the learner. Other teaching machines simply present the instructional material systematically, but a computer has to decide and present the instructional material according to needs of the learner.

## FUNCTIONS OF THE COMPUTER -

The most effective device for presenting an instructional programme is the Computer. With its speed, accuracy and Storage Capacity, a computer is an entirely different class from a teaching machine. It can be made to handle a learning programme of any degree of complexity. A computer may be made to serve hundreds of users simultaneously with different programmes, whereas a teaching machine can be used by only one learner at a time and must be reloaded for every user with a fresh copy of the programme.

The following are the main functions of computer in teaching-learning process :

1.  It stores the programmed instructional material in different forms on the same topic to facilitate the different Students.

2. It stores the information. The magnetic tapes and tapes also store the information.

3. It communicates the information with the help of Electric typewriters.

4. It selects and rejects the linear for the learning material on the basis of his entering behaviour.

5. It provides the reinforcement to the learner by confirming his responses.

6. It also tests the students learning outcomes.

## Computer and Teaching Process -

Lawrence stolurow and Danied Davis (1965) developed a complex model of teaching in which computer can present the instruction in the place of teacher. They have divided Computer assisted instruction into two aspects :-

(a) Pre-tutorial Phase        (b) Tutorial Phase

## (a) Pretutorial Phase -

At this phase computer selects the learners on the basis of their entering behaviours for

achieving the specific objectives. If a learner does not fulfill the entering behaviour is rejected by Computer. It means that there is no instructional material which can satisfy the needs of the learner. If a learner fulfils the material he has to move to the tutorial phase.

**(b) Tutorial Phase –**

Computer-assisted instruction operates as follows :

At the computer's command a frame of the programme consisting of information and a question is submitted to the learner. The learner considers this material, then relays his answer to the Computer. The Computer evaluates the answer and returns a Comment.

The content of the programme is usually stored outside the computer in the form of slides, printed matter or films. However if the content of a particular frame is designed to vary with the learner's responses, it is stored or generated electronically within the Computer. For example a geometric figure shown on a television screen may be made to change its shape according to the way in which the learner, using a typewriter, handles the

variables in the equation the figure represents. In this case the information constituting the figure is maintained with the computer, since it has to be modified and not merely delivered by the Computer.

The programme may be presented to the learner through a tape-recorder or headphones or visually through a Slide projector, type-writer or cathode-raytube. A cathode ray tube can display a drawing or diagram and then, at the direction of computer incorporate within it the Student's responses made at a typewriter or with a light pen. Information may also be presented to eye and ear at once by means of television, Video-tape recorder or talking type wirters. Response equipment is also varied. The learner may type an answer, press a key on a multiple-choice key box, write or draw with a photo-electric light pen or press with his figure a picture displayed on a touch sensitive screen. In deed in some instructional systems the learner now replies to the Computer through a microphone.

## Usesof Computer –

A Computer does not only present the instructional material, but also regulates and controls the students behaviours the teaching skill can be developed by

Computer in the training programme.

The entering behaviour of learner is given to the control unit with the help of a card. The control unit selects the appropriate instructional material for the learner from store unit. The learners and his behaviour is also reinforced.

A Computer can also provide instruction to large numbers of students simultaneously, each if need be at a different point in the curriculum. A computer with 200 terminals can serve up to 6000 students a day.

A computer can also adjust an instructional programme to the needs of the individual learner. It does so by remembering and evaluating the responses of each user. The computer assisted instruction can be used in four areas of education system :-

1. Teaching and Instruction purpose.

2. Research work or data processing purpose.

3. Educational guidance and counselling purpose.

4. Examination system for preparing results.

1. **Teaching and Instruction** -

A computer assisted instruction can be used for teaching and instruction purpose in the field of

education. As it has been pointed out earlier,
however, from a teaching point of view a computer is
only a device for presenting a programme. It is the
programe that does the instruction. If a computer,
then, is to handle the instruction of a wide range
of programme it presents must contain a wide range
of appropriately sequenced information. However a
powerful computer and elaborate branching do not
guarantee that each student will be branched through
a sequence of frames that meet his needs exactly.
He may, in fact, be switched through several
sequences without being the wiser about the
materials. We have to ensure that the computer is
able to recognise the needs actually implicit in the
student's responses and that the remedial sequence
it then offers really clears up his doubts. That is
to say, we should ensure that the frames submitted
to the student are actually satisfactory to him. To
do this we must have wide, factual knowledge about
what misunderstandings students form regarding
particulars items of subject-matter, and about how
these mistakes are really rectified, We can then
device frames capable of clearing up the
difficulties that different students encounter at

the points where the encounter them.

Thus the computer assisted instruction is highly individualized instruction devices. The students having varied type entering behaviour can learn the same content through different forms of instructional material. A computer takes decision about the instructional material on the basis of learner's entering behaviour.

## 2. Data Processing for Research Work -

A Computer is used in research institutes or universities for analysing the data for obtaining results and verifying the research hypotheses. In Indian conditions a computer is now being used most frequently in analysing the research data. It is very economical speedy, and accurate device for this purpose and has made this difficult task more simple. A large sample may be selected because huge data can be easily analysed by the use of computer services.

## 3. Educational Guidance & Counselling -

Now computer also assists in guidance and counselling services. The students are diagnosed

for educational guidance, their weaknesses as are identified and remedial instructions are provided for them by a computer. It is also functions as tutorial teaching and instruction.

In addition to that vocational guidance is also given by the computer. A card is prepared for the abilities of a student and it is given to the computer. It takes a decision and provides the guidance for the job through electric Typewriter. These services are not available in our country. It may also be termed as guidance technology.

## 4. Examination System -

Teaching and testing are the two main tasks of education process. The computer assisted instructions are used for both the purposes. To prepare an examination result is very time consuming process. U.P. Board Examination is one of biggest examination bodies in the world, the use of computer has made this task speedy, accurate and objective.

In Indian conditions, the computer services are employed in preparing examination results of universities, States Boards and other competitive examinations.

The Computer services are also taken in industry, administration and management in our country. Teaching and instructions through computer is still limited to western countries because the computer-assisted instruction is very costly and for a country with a developing economy like India, it is possible to use this device for teaching and instruction purpose.

## LIMITATIONS OF COMPUTER -

Assisted instruction poses a very great problem with regard to the effective maintenance of its learning system.

It is difficult to provide really useful learning systems with a view to provide individualized learning process.

It is quite costly and our Indian Institutions and Universities can not afford to have a Computer for teaching and instruction purpose for a number of years to come.

As John P. Dececco states that the computer impact an instruction will be felt much later because its

relationship to teaching-learning requires a great deal of research, some of which must await the fuller development of empirically based theories of teaching.

It is very important to note that Computer-assisted instruction can only be effectively used to achieve congnitive and psychomotor objective of learning but affective objectives can not be realized by Computer-assisted instruction.

The natural thoughts that flash by are of a world entirely in the grip of the Computer. It is to be said that Computers, like the old song says, are here, there and every where. So to make an attempt to account for all the things a computer can do or to enumerate all the things it is used far, is really for beyond the scope of this study.

**(c)   Method and Procedure -**

This study attempts to Survey, analyse and assess the prevailing practices of Audio-Visual Education Programme in training process in the teacher's training colleges in Uttar Pradesh. It also intends to identify the Characteristics of the programme and to classify the Colleges on the basis of the quality of the programme offered by them.

**The Problem of the Study -**

The topic of the study is "Study of the programme of Audio-Visual Education in teacher's training colleges in U.P.". The present work studies in a limited field i.e. in some prominent Colleges of a few Universities like Meerut, Kanpur, Rohilkhand and Bundelkhand.

**Determination of Sample -**

Research work has to be done for the curiosity or to the welfare of Society and nation. It is necessary to Study all the members of population before predicting any sentence about them but practically it can not be ever possible. So researcher choose some

general members of population as the representatives of the whole population. The Units which chosen for this purpose are called sample and this process is called sampling method. Samples are of four types -

(a) Random Sampling

(b) Stratified Sampling

(c) Incidental or accidental Sampling

(d) Purposive Sampling

In the present study researcher used random sampling method. In random sampling we have a common chance for every Unit. In random sampling size of sample have no means.

**As a Sample -**

(a) No. of affiliated Colleges      - 30

     Principals/Head of the Deptt.    - 30

     Lecturers (Teachers training Colleges) - 100

(b) Pupil teachers- 800

- Male Pupil Teachers    - 560

- Female Pupil Teachers - 240

**Method of Data Collection -**

As the information about the College operating Audio-Visual education in trainig programme in U.P. has

not readily available from any gazetter or the published literature in the field, it was found necessary to conduct a pilot survey of the teachers training Colleges on the Universities basis through a brief information inventory in order to identify the Colleges operating the Audio-Visual education programme and to eliminate the colleges not operating same.

The items of questionaire for the classification of the Colleges were based on the provision of Audio-Visual Education in the syllabus, Staff availability in the Colleges, type of training and the open question to obtain the relevent infromation. The items selected to the questionaire were discussed with the experts in the field to make them more precise and meaningful. The questionaire asked for purely objective data.

## DEVELOPMENT OF THE QUESTIONAIRE -

### Determination of items for Study -

It was felt necessary to obtain the preliminary personal experience and observation about the prevailing position of the programme for the planning of the study. Keeping this view in mind some sample

colleges operating audio-visual education were selected for visit.

The observation includes the Study of :

1. **Objectives** of audio-visual education in training programme.

2. **Organisation** of audio-visual education programme including.

3. **Appraisal including**

From the personal observations, interviews and the literature reviewed a tentative Organisation of the items for the Study was evolved on the basis of a logical rationale for evaluation of Audio-visual education in training programmes.

**Rationale** -

The planning of the study is based on the rationale discussed below :-

The point of triangle indicating Objectives, Organisation and administration and the appraisal together from a complete circuit of the Audio-visual education in training programmes. Hence it is found quite logical that the appraisal of the programme

should include the critical study of the objectives, organisation and administration and the appraisal techniques of the programmes in audio-visual education. Thus the items were organised on the basis of the evaluative rationale for the audio-visual education.

## Expert Opinion -

Further to make the items of the study critically scrutinized from the various angles of audio-visual education programmes, the committee representing five experts in the field from different areas and level was formed.

| DISIGNATION | LEVEL | NUMBER |
|---|---|---|
| Principal | Inter College | 1 |
| Head | Teacher training College | 1 |
| Assistant Director (Adult education) | Rohilkhand University | 1 |
| Audio-Visual Education Officer | ISRO | 1 |
| Director (Adult Education) | U.P. Govt. | 1 |
| | Total: (Five) | 5 |

**Areas of Inquiry -**

**(A) Objectives -**

The objectives of the audio-visual education in training programme comprised the following major areas :-

(a) Developing teachers competency in the preparation, selection and proper use of audio-visual aids and skills of operation, handling and major repairs of projectors and equipments.

(b) Research and publication in this field.

(c) Production of audio-visual aids and rendering extension services to the concerned institutions.

(d) Preparing the commercial producers, technicians of the audio-visual instructional materials.

**(B) Curriculum Construction -**

An attempt was made to know how the curriculum in audio-visual education is planned in

the colleges. The major practices of the staff involvement in the curriculum is also try to know by the researcher.

**(C) Staff and Training -**

Several questions were included to know the involvement of the Staff in the various audio-visual education activities and their academic preparation to achieve the objectives of the Programme. It was also intended to develop an ideal picture of the training programme in audio-visual education during teachers training.

**(D) Financial Problems -**

Budget is the heart of the programme. The working and progress of the programme mainly depends upon the availability of funds. It also needs the adequate distribution of the budget to the various heads of the programme. It was found necessary to know the financial problems of the various training institutions.

**(E) Organisation and Administration -**

The trainees should be provided with the ideal learning situation for the effective training in

audio-visual education. It can be achieved only by the proper organisation and administration. Proper availability of audio-visual aids and equipments in the training deptt. was the main point of concentration.

**(F) Computer -**

Importance of Computer is the major aspect of the questionaire. In this area researcher tried to know about Computer education and the problems relating to Computer education.

QUESTIONAIRE NO. 1 -

(For Principals/Head of the Department and Lecturers)

A)   Objectives (Audio-Visual Education) -

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | In Modern Education Audio-Visual education has an identical role. | | | |
| 02. | In teachers training Colleges their is an important role of Audio-Visual Education. | | | |
| 03. | Audio-Visual Education can achieve cognitive Objective of Education. | | | |
| 04. | Audio-Visual Education can achieve affective objective of Education. | | | |
| 05. | Audio-Visual Education can achieve psycho-motor objective of Education. | | | |
| 06. | Vocational Education can be given more effectively by Audio-Visual aids than the traditional Education. | | | |
| 07. | Vast country like India which have very large population, development of Audio-visual Education is necessary. | | | |
| 08. | Audio-Visual Education is very useful media for formal Education. | | | |
| 09. | Audio-Visual Education is very useful to achieve the objectives of informal Education. | | | |
| 10. | Audio-Visual Education is the model training method to educate masses. | | | |

## B) Curriculum Construction (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | In teachers training Colleges Audio-Visual Education Programme is according to the Curriculum. | | | |
| 02. | Audio-Visual Education reflects light on all the aspects of teachers training curriculum. | | | |
| 03. | In teachers training programme Audio-Visual aids or materials are used according the teaching methods. | | | |
| 04. | Research techniques are used in Audio-Visual Education. | | | |
| 05. | Audio-Visual Education can give more knowledge in less time. | | | |
| 06. | In Audio-Visual Education Software and hardware approach are used according the curriculum. | | | |
| 07. | Guidance and Counselling is necessary for Audio-Visual Education. | | | |
| 08. | University Grants Commission and Indira Gandhi open University plays an important role in Audio-Visual Education Programme. | | | |
| 09. | In the Organisation of Audio-Visual Education Programme democratic method is used. | | | |
| 10. | In the Construction of Curriculum teachers and Student involvement is useful. | | | |

C) **Staff and Training** (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | Trained lecturers give training to the pupil teachers in teachers training Colleges. | | | |
| 02. | General training about Audio-Visual Education is available for all the trainees. | | | |
| 03. | Special training facility of Audio-Visual Education is also available in College. | | | |
| 04. | Additional Staff is available for operation and maintenance of the different equipment. | | | |
| 05. | Off Campus training i.e. field trips, visits to museum, fairs, workshops etc. have a significant role in training. | | | |
| 06. | Specialized staff is available to the lecturers for making materials about planning, evaluation and instruction. | | | |
| 07. | Training is available for preparing college broad-casting programmes. | | | |
| 08. | Continuous evaluation procedure is adopted to evaluate specialized or trained staff. | | | |
| 09. | For preparing indiginous and cheap instructional materials proper training facility is available. | | | |
| 10. | Qualification and experience is considered while making appointments of staff. | | | |

D) **Financial Problems**- (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | College have special grant for convening Audio-Visual Education. | | | |
| 02. | College have financial assistance for the replacement of old equipments into new one. | | | |
| 03. | College have the financial aid for service charges for equipments and other accessories. | | | |
| 04. | Colleges fellsthe financial burden for research and publication in Audio-Visual Education. | | | |
| 05. | Additional financial aid is arranged for Audio-Visual library by the institution. | | | |
| 06. | There is proper Co-ordination between planner, staff and trainees. | | | |
| 07. | The College have sufficient finance for the purchasing of different equipments. | | | |
| 08. | College pays freight charges for motion pictures, film stirps etc. | | | |
| 09. | The college gives special allowances for trained teachers and Off-Campus activities on Audio-Visual Education. | | | |
| 10. | For the development of Audio-Visual Education programme, research and publication activity is taken seriously by the college. | | | |

### E) Organisation and Administration (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 01. | Lecturers used Audio-Visual Material in sufficient quantity in training process. | | | |
| 02. | The college adopts different methods in the Organisation of Audio-Visual Programme. | | | |
| 03. | College have Audio-Visual Material in sufficient quantity according to the curriculum. | | | |
| 04. | College have the interference of Principal or other authorities in Audio-Visual Education. | | | |
| 05. | Institution have separate Deptt. for the extension of Audio-Visual Education. | | | |
| 06. | Institution have the air-conditioned room facility for computer and other expensive equipments. | | | |
| 07. | Institution have organised the seminars on Audio-Visual Education. | | | |
| 08. | Institution have the problem of electricity for operating T.V., Computer and other equipments. | | | |
| 09. | Institution have the facility to publish news and catlogs of materials of Audio-Visual Education. In which it is mentioned whether it have procured by purchase, by loan, by cash or rental basis. | | | |
| 10. | Institution have the sufficient literature about teaching and research on Audio-Visual Education. | | | |

## F) <u>Computer</u> - (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 01. | Computer Education is essential for teachers training Institutions. | | | |
| 02. | By the use of computer teaching become more efficient. | | | |
| 03. | Computer education in teachers training Colleges is given by trained staff. | | | |
| 04. | In institution every pupil teacher have the facility to work on separate computer. | | | |
| 05. | Institution give sufficient time incollege time table for computer education. | | | |
| 06. | Institution have full literature about computer eudcation. | | | |
| 07. | Institution have full assistance about guidance and counselling of computer education. | | | |
| 08. | Computer simplifies the study of language, science and social aspects. | | | |
| 09. | Your institution have the financial aid for the purchase and maintenance of Computer. | | | |
| 10. | Computer is used as the most important means of mass communication. | | | |

QUESTIONAIRE  No. 2- (For pupil teachers)

प्रश्नावली सं0 – 2 (छात्राध्यापकों के लिए)

| S.No.<br>क्र0 सं0 | STATEMENT<br>कथन | Agree<br>सहमत | Indefinite<br>तटस्थ | Disagree<br>असहमत |
|---|---|---|---|---|
| 01. | Audio-Visual Education can achieve cognitive, affective and psycho-motor objectives of Education.<br><br>श्रव्य दृश्य शिक्षा द्वारा शिक्षा के ज्ञानात्मक भावात्मक एवं क्रियात्मक उद्देश्यों की प्राप्ति की जा सकती है. | | | |
| 02. | Audio-Visual Education is a model system to educate Masses.<br><br>श्रव्य दृश्य शिक्षा जन–समूह को शिक्षा देने के लिए आदर्श व्यवस्था है. | | | |
| 03. | Vocational education can be given More effectively by Audio-Visual Education than the traditional method.<br><br>श्रव्य दृश्य शिक्षा के माध्यम से व्यवसायिक शिक्षा नियमित शिक्षा की अपेक्षा अधिक प्रभावशाली ढंग से दी जा सकती है. | | | |
| 04. | Audio-Visual Education covers all the aspects of teachers training.<br><br>श्रव्य दृश्य शिक्षा शिक्षक प्रशिक्षण के समस्त पहलुओं पर प्रकाश डालती है. | | | |
| 05. | Extension Deptt. in the College gives the financial help for Audio-Visual Education.<br><br>महाविद्यालय में प्रसार सेवा विभाग द्वारा श्रव्य दृश्य शिक्षा हेतु. वित्तीय सहायता दी जाती है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 06. | College have sufficient material for Audio-Visual Education. <br><br> महाविद्यालय में प्रचुर मात्रा में श्रव्य दृश्य शिक्षा हेतु सामग्री उपलब्ध होती है. | | | |
| 07. | The use of Audio-Visual material, the education process become more scientific and interesting. <br><br> श्रव्य दृश्य सामग्री के उपयोग से शिक्षा प्रक्रिया वैज्ञानिक एवं मनोरंजक हो गयी है. | | | |
| 08. | Audio-Visual Education is more beneficial in distant areas which have no other means of eudcation. <br><br> दूर-दराज के ग्रामीण क्षेत्रों में जहाँ अन्य शिक्षा के साधनों का अभाव है, श्रव्य दृश्य शिक्षा अति उपयोगी है. | | | |
| 09. | The Development of Audio-Visual Education is essential to educate the vast masses of India. <br><br> भारत की विशाल जनसंख्या को शिक्षित करने के लिए श्रव्य दृश्य शिक्षा का विकास आवश्यक है. | | | |
| 10. | Audio-Visual Education is very useful in formal and informal education. <br><br> श्रव्य दृश्य शिक्षा औपचारिक तथा अनौपचारिक शिक्षा के लिए अत्यन्त उपयोगी है. | | | |

| S.No. | S T A T E M E N T | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 11. | The programme broadcast by All India Radio and telecast by Doordarsan for U.G.C. and IGNOU are useful for teachers training.<br><br>विश्वविद्यालय अनुदान आयोग एवं इन्दिरा गाँधी राष्ट्रीय मुक्त विश्वविद्यालय के लिए आकाशवाणी एवं दूरदर्शन द्वारा प्रसारित कार्यक्रम प्रशिक्षण की दृष्टि से उपयोगी हैं. | | | |
| 12. | Audio-Visual Education is given proper time in college time table.<br><br>श्रव्य दृश्य शिक्षा के लिए महाविद्यालय की समय सारिणी में उपयुक्त समय दिया गया है. | | | |
| 13. | Hardware and software approach can easily used in communication devices.<br><br>सम्प्रेषण विधियों में हार्डवेयर तथा सॉफ्टवेयर उपागमों का सरलता से प्रयोग किया जा सकता है. | | | |
| 14. | Proper guidance and counselling is given for Audio-Visual Education.<br><br>श्रव्य दृश्य शिक्षा हेतु समुचित निर्देशन एवं परामर्श दिया जाता है. | | | |
| 15. | Audio-Visual Material is used according to your need and self will.<br><br>श्रव्य दृश्य सामग्री का प्रयोग आप आवश्यकता पड़ने पर स्वेच्छानुसार करते हैं. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 16. | Audio-Visual equipments saves the time, labour and energy.<br><br>श्रव्य दृश्य सामग्री के प्रयोग से समय श्रम एवं शक्ति की बचत होती है. | | | |
| 17. | Audio-Visual Education is helpful for developing interest among students to their subjects.<br><br>श्रव्य दृश्य शिक्षा छात्रों में विषय के प्रति रुचि विकसित करने में सहायक है. | | | |
| 18. | Audio-Visual Programme makes lesson simple and easy to learn.<br><br>श्रव्य दृश्य कार्यक्रम पाठ को सरल बनाकर उसे याद करना आसान बनाता है. | | | |
| 19. | Audio-Visual Education has the important effect on the learning process.<br><br>श्रव्य दृश्य शिक्षा का अधिगम प्रक्रिया पर उत्तम प्रभाव पड़ता है. | | | |
| 20. | General Principles is adopted for the preparation of Audio-Visual Material.<br><br>श्रव्य दृश्य सामग्री के तैयार करने में सामान्य सिद्धान्तों को अपनाया जाता है. | | | |
| 21. | College have the facility for general training in Audio-Visual Education.<br><br>महाविद्यालय में श्रव्य दृश्य शिक्षा के सामान्य प्रशिक्षण की व्यवस्था है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 22. | Use of Audio-Visual Equipments can control and change the behaviour.<br><br>श्रव्य दृश्य उपकरणों के प्रयोग से व्यवहार को नियन्त्रित एवं परिवर्तित किया जा सकता है. | | | |
| 23. | Use of Audio-Visual Material makes the teaching more practical.<br><br>श्रव्य दृश्य सामग्री के प्रयोग से शिक्षा को अधिक व्यवहारिक बनाया जा सकता है. | | | |
| 24. | The Audio-Visual aids save time and make learning solid and durable.<br><br>श्रव्य दृश्य सामग्री समय बचत के साथ–साथ अधिगम प्रक्रिया को भी ठोस एवं स्थायी बनाती है. | | | |
| 25. | Audio-Visual Education is helpful to improve testing, Organisation, Classification and research attitude.<br><br>श्रव्य दृश्य शिक्षा अनेक कुशलताओं जैसे – परीक्षण, संगठन, वर्गीकरण और अन्वेषणीय प्रवृत्ति को संवारने में सहायक है. | | | |
| 26. | The demonstration is given by trained, staff about the use of Audio-Visual material.<br><br>श्रव्य दृश्य शिक्षण से सम्बन्धित सामग्री के प्रयोग करने के लिए प्रदर्शन प्रशिक्षित व्यक्तियों द्वारा किया जाता है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 27. | College have full arrangement of training for the repairing of equipments.<br><br>उपकरणों की मरम्मत करने के लिए प्रशिक्षण की समुचित व्यवस्था है. | | | |
| 28. | College provides special training in Audio-Visual Education.<br>महाविद्यालय में श्रव्य दृश्य शिक्षा में विशिष्ट प्रशिक्षण दिया जाता है. | | | |
| 29. | Audio-Visual teaching have interference by principal or other authorities.<br>श्रव्य दृश्य शिक्षण कार्यक्रम में प्राचार्य तथा अन्य व्यक्तियों का हस्तक्षेप होता है. | | | |
| 30. | College have the facility for the training of hardware and software approach.<br>महाविद्यालय में हार्डवेयर तथा सॉफ्टवेयर उपागम के प्रशिक्षण की सुविधा है. | | | |
| 31. | Special financial aid is required for Audio-Visual Education.<br>श्रव्य-दृश्य शिक्षा के लिए विशेष आर्थिक सहायता की आवश्यकता है. | | | |
| 32. | Training is must for the preparation of text books and short notes books about Audio-Visual Education.<br><br>श्रव्य दृश्य शिक्षा के विषय पर पाठ्य पुस्तकों और संक्षिप्त पाठ्य पुस्तकों को तैयार करने में प्रशिक्षण जरूरी है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 33. | Required information about the Audio-Visual material and equipments have received by books, news-papers, letter, poster, folder or by summarised news.<br><br>श्रव्य दृश्य सामग्री और उपकरणों के सम्बन्ध में आवश्यक सूचना प्रकाशित पुस्तकों, समाचार पत्र-पत्रिकाओं, पोस्टर, फोल्डर या संक्षिप्त समाचार द्वारा प्राप्त होती है। | | | |
| 34. | College have the additional staff for the use of Audio-Visual material.<br><br>श्रव्य दृश्य सामग्री के प्रयोग हेतु अतिरिक्त स्टॉफ की महाविद्यालय में व्यवस्था है। | | | |
| 35. | Proper training facility is available for the development and design of model classroom with indiginous and cheap instructional materials.<br><br>आदर्श कक्षा के विकास और डिजाइन में स्वदेशी और सस्ती अनुदेशन सामग्री के प्रशिक्षण की सुविधा है। | | | |
| 36. | College have the air-conditioned Room for computer and other electronic equipments.<br><br>महाविद्यालय में कम्प्यूटर एवं विद्युत उपकरणों के लिए वातानुकूलित -कक्ष की व्यवस्था है। | | | |
| 37. | College have the proper-room or laboratory for the use of Audio-Visual Equipments.<br><br>श्रव्य दृश्य उपकरणों को प्रयुक्त करने के लिए सुव्यवस्थित कक्षा एवं प्रयोगशाला की सुविधा है। | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 38. | Institution gives the financial help for the Maintenance and transportation of Audio-Visual equipments. श्रव्य दृश्य उपकरणों के रख-रखाव तथा लाने ले जाने के लिए संस्था में वित्तीय सहायता प्राप्त है। | | | |
| 39. | Institution gives the financial help for the manufacturing of Audio-Visual material. श्रव्य दृश्य सामग्री निर्मित करने के लिए संस्था वित्तीय सहायता प्रदान करती है। | | | |
| 40. | Institution gives the financial help for the purchase of equipments, their replacement and service or freight charges. उपकरणों के क्रय हेतु उनके बदलने के लिए एवं सर्विस व्यय या भाड़ा चुकाने हेतु संस्था वित्तीय सहायता प्रदान करती है। | | | |
| 41. | The literature about Audio-Visual education is available. श्रव्य दृश्य शिक्षा से सम्बन्धित साहित्य उपलब्ध है। | | | |
| 42. | Institution have the facility to publish catalogues of Audio-Visual Materials. संस्था में श्रव्य दृश्य सामग्री से सम्बन्धित सूची-पत्र प्रकाशित करने की व्यवस्था है। | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 43. | Institution have the facility to publish small news items and news articles about Audio-Visual Education. <br> संस्था में श्रव्य दृश्य शिक्षा से सम्बन्धित संक्षिप्त समाचारों और समाचार लेखों को प्रकाशित करने की सुविधा है। | | | |
| 44. | Seminars an Audio-Visual Education are organised among lecturers, Principals and pupil teachers. <br> शिक्षकों, प्रधानाचार्यों एवं छात्राध्यापकों के मध्य श्रव्य दृश्य शिक्षा पर सेमिनार आयोजित किये जाते हैं। | | | |
| 45. | Institution gives the facility of Electricity, battery, Gas, petrol or generator to operate the Machines. <br> संस्था मशीनों के संचालन के लिए विद्युत, बैटरी, गैस, पैट्रोल या जैनरेटर की सुविधा प्रदान करती है। | | | |
| 46. | Audio-Visual aids are new Media of Communication. <br> श्रव्य दृश्य सहायक सामग्री सम्प्रेषण का आधुनिक माध्यम है। | | | |
| 47. | Teaching programme of Audio-Visual Education have the good administration and organisation. <br> श्रव्य दृश्य शिक्षा का शैक्षिक कार्यक्रम का प्रशासन एवं संगठन उत्तम है। | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 48. | Lecturers got assistance in planning, evaluation and to prepare instructional material about Audio-Visual Education.<br><br>श्रव्य दृश्य शिक्षा में शिक्षकों को नियोजन मूल्यांकन एवं अनुदेशन सामग्री को तैयार करने में सहायता दी जाती है. | | | |
| 49. | The College have the facility of Audio-Visual Library.<br><br>महाविद्यालय में श्रव्य दृश्य पुस्तकालय की सुविधा प्राप्त है. | | | |
| 50. | The research facility is available in Audio-Visual Education.<br><br>श्रव्य दृश्य शिक्षा के क्षेत्र में शोधकार्य की सुविधा है. | | | |
| 51. | Computer simplifies the study of language, Science and Social aspects.<br><br>कम्पयूटर ने भाषा, विज्ञान और सामाजिक अध्ययन को सरल बना दिया है. | | | |
| 52. | The Computer brings effective and rapidness in teaching process.<br><br>कम्पयूटर से शिक्षण-प्रक्रिया में अधिक कुशलता एवं त्वरितता आती है. | | | |
| 53. | The computer education is given by trained staff.<br><br>कम्पयूटर की शिक्षा प्रशिक्षित व्यक्तियों द्वारा दी जाती है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 54. | The use of Computer is helpful to achieve the good results in education. <br><br> कम्पयूटर का प्रयोग उत्तम शिक्षा की पूर्ति में सहायक है. | | | |
| 55. | The use of computer as multimedia is very essential in teacher's training. <br><br> शिक्षक प्रशिक्षण में बहु–संख्यक माध्यम के रूप में कम्पयूटर का प्रयोग आवश्यक है. | | | |
| 56. | Computer makes the learning process easy and interesting. <br><br> कम्पयूटर ने अधिगम प्रक्रिया को सरल व रोचक बना दिया है. | | | |
| 57. | Institution gives full assistance about guidance and counselling of computer education. <br><br> कम्पयूटर शिक्षा के लिए उचित परामर्श एवं निर्देशन की सुविधा संस्था द्वारा प्राप्त है. | | | |
| 58. | Every pupil teacher have the facility to work on separate computer. <br><br> कम्पयूटर पर कार्य करने की प्रत्येक छात्राध्यापक को व्यक्गित तौर पर सुविधा प्राप्त है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|-----------|----------|
| 59. | Institution gives sufficient time in college time-table for computer education.<br><br>कम्पयूटर शिक्षा के लिए संस्था द्वारा महाविद्यालय समय-सारिणी में समुचित समय दिया जाता है. | | | |
| 60. | Institution have the financial aid for the purchase and maintenance of computer.<br><br>कम्पयूटर के क्रय एवं रख-रखाव हेतु संस्था को आर्थिक सहायता प्राप्त है. | | | |

## Interpretation of Data -

Analysis of data is the most important step in the research work. By this a conclusion is made about the Study. Analysis of data means to study the data in a planned and systematic way by that one can able to analyse whole problem easily and could make a conclusion.

In the present Chapter we take data from the different teachers training colleges of U.P.

### TABLE (1) SHOWS TOTAL NO. RESPONDANTS

### TABLE - 1

| | | |
|---|---|---|
| 1. Affiliated Colleges | - | 30 |
| 2. Principals/Head of the Department | - | 30 |
| 3. Lecturers | - | 100 |
| 4. Pupil teachers | - | 800 |

## Classification and Tabulation of Data -

In the words of Mr. J.R. Hicks " Classified and arranged facts speak themselves, unarranged they are as dead as mutton."

Classification is the process of arranging data in groups and classes according to their resemblance and gives expression to the unity of attributes. In this step raw scores are classified into different categories. These categories are shown by the table No. (2).

**TABLE (2) SHOWS THE DIVISION OF PUPIL TEACHER ON THE BASIS OF SUBJECT - CATEGORY AND SEX.**

TABLE - 2

| CATEGORY | No. of Pupil Teacher | Total | Percentage | Total (%) |
|---|---|---|---|---|
| Art | 560 } | | 70% | |
| | } | 800 | | 100% |
| Science | 240 } | | 30% | |
| Pupil Teacher (Male) | 560 } } } | | 70% | |
| | } | 800 | | 100% |
| Pupil Teacher (Female) | 240 } | | 30% | |

Classification is the process of arranging data into sequences and groups according to their common characteristics or seperating them into different but related parts while tabulation ivolves the orderly and

systematic presentation of numerical data in a form designed to elucidate the problem under consideration.

In this study before analysing the result, the step of classification and tabulation of data is followed.

## Statistical Analysis -

It is a means by which researcher reaches to the conclusion. In Statistical Analysis researcher used, mean, standard deviation, standard error, t - value, f - ratio and Chi-square ($x^2$).

To study comparatively the apptitude of pupil teachers researcher divided them into different categories. The score may be determined as follows :-

       Marks for Agree        --------    2

       Mark for Indefinite    --------    1

       Mark for disagree      --------    0

## Measurement of assumptions of Principals, Heads of the Department and Lecturers (Teacher's training Colleges) (about all the aspect of Audio-Visual Education Programme :-

Researcher measured the assumptions of Principals, Heads of the department and lecturers with the help of

Chi-square. Here researcher assumed that is Zero difference in observed and expected values. But in the reality there is some difference between observed and expected Values.

## TABLE - 3

### Assumptions of Principals and Heads of the Department of teachers training colleges about Audio-Visual Education.

| FREQUENCIES | | | ASPECTS | | | | | | Chi-square of all aspects $x^2$ |
| Agree | Inde-finite | Disagree | I | II | III | IV | V | VI | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 22 | 18 | 20 | − | − | − | 0 | + | − | 0.4 |
| 24 | 22 | 14 | + | 0 | − | − | − | + | 2.8 |
| 19 | 25 | 16 | 0 | − | − | + | − | − | 2.1 |
| 29 | 17 | 15 | + | + | + | − | 0 | − | 3.9 |
| 26 | 16 | 18 | − | − | − | + | + | + | 2.8 |
| 30 | 17 | 13 | + | + | 0 | + | − | − | 7.9* |
| 35 | 17 | 08 | − | − | + | + | + | + | 18.9** |
| 32 | 10 | 18 | − | + | + | − | − | + | 12.4* |
| 33 | 17 | 10 | + | − | + | + | − | + | 8.95* |
| 32 | 22 | 06 | + | + | 0 | − | + | + | 8.2* |
| 28 | 20 | 12 | + | − | + | + | − | + | 6.4* |
| 32 | 18 | 10 | + | + | + | − | + | + | 12.4** |
| 08 | 28 | 24 | + | − | − | + | + | + | 11.2* |
| 35 | 17 | 08 | + | + | + | − | − | + | 18.9* |
| 28 | 10 | 22 | − | + | + | + | − | + | 8.4* |

| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| 29 | 27 | 15 | + | + | + | − | − | − | 3.9 |
| 28 | 14 | 18 | − | 0 | − | − | 0 | + | 5.2 |
| 25 | 10 | 15 | + | − | − | + | − | − | 2.5 |
| 27 | 18 | 15 | − | + | − | − | + | − | 3.9 |
| 18 | 24 | 18 | 0 | + | − | − | + | − | 1.2 |
| 31 | 15 | 14 | + | + | − | 0 | + | + | 9.0* |
| 14 | 22 | 24 | − | + | − | + | + | + | 12.85** |
| 35 | 15 | 10 | + | + | + | − | − | + | 17.50** |
| 34 | 12 | 24 | + | + | − | − | 0 | + | 14.8** |
| 29 | 16 | 15 | − | − | + | + | + | − | 6.1* |
| 28 | 10 | 22 | − | + | + | − | − | − | 8.4* |
| 31 | 20 | 09 | − | + | − | + | + | + | 12.10* |
| 21 | 25 | 16 | + | − | − | + | − | + | 2.1 |
| 25 | 22 | 13 | − | − | + | + | − | − | 3.9 |
| 15 | 25 | 20 | + | − | + | − | + | − | 2.50 |

Note :- *    Significant at 0.05 level.

     **    Significant at 0.01 level.

## Assumptions of Principals and Heads of the Deptt. about Audio-Visual Education -

The assumption of Principals and heads of the deptt. are analysed in the six following aspects :-

## 1. Objectives -

It is found from the data in table - 3 that colleges aim at acquainting the teachers with various

modern tools of teaching techniques i.e. Audio-Visual Aids.

Further it is seen from the data that more than 40% of the colleges implement the following objectives:

- To help the teacher in selection and use of Audio Visual aids appropriate to their respective subject matters.

- To impart training in handling and Operation of Audio-Visual equipments.

- To impart the knowledge of philosophy and principles of Audio-Visual Education.

- To impart training in the design and development of pro-to-type classroom instructional aids from the indiginous materials readily and in expensively available.

## 2. Curriculum Construction -

It is clear that 48% Principals and Heads of the department respond in favour of curriculum construction. They thought that Audio-Visual Education must be the essential part of the Curriculum.

Audio-Visual Teaching materials are closely related with curriculum. In the state like Uttar Pradesh their use must be most effective. India in order to educate vast masses speedily and efficiently, should fully utilize their aids in the teaching process. By Audio-Visual Education students get not merely theoritical instruction but through these aids, a graphic presentation of the subjects also received. Television programmes presented by University Grants Commission and Indira Gandhi National open University had a vital educational importance. In this study researcher feels that male principals and Heads of the departments have more knowledge about Audio-Visual Education than female ones because the percentage of responses of females are less than the males.

## 3. Staff for Audio-Visual Education -

Staff is the executive machinery of the entire training programme from the data it is found that the availability of the specialised staff for Audio-Visual Education in the teachers colleges is very minimum. There is no college having Audio-Visual librarian and clerk for this programme.

So it is clear that the teaching operational and administerial staff is in short No's or the colleges can not afford to fill up the posts.

Since the qualified persons are not available in this field, emphasis on experience is not placed by the institutions while making appointments.

When there is no availability of the staff, quality becomes a secondary question or a matter of chance.

The important findings from the data is that almost all the staff members are considerably engaged in the other activities of the college. It may be found that the Staff may not be specially employed for Audio-Visual education deptt. in the Colleges.

There is no college among all teachers colleges which is giving special training or general training in theory and practical field of Audio-Visual Education.

## 4. Budget -

All the activities of training programme needs a financial support. It can be said that budget is one

of the forces which keep the programme moving. Hence, an effort was made to know the trend of the financial support to this field by including this item in the study.

In this aspect 45% male principals and 50% female principals respond positively.

It had been also observed that most of the training colleges do not have sufficient funds at their disposal to make full use of the aids. The state Government are not providing sufficient funds. It is realised that ladies can face financial problems more firmly than gents. Ladies can do their work with few means but it is impossible for gents. Ladies also make special effort to over come financial problems.

## 5. Organisation and Administration -

Achievement of the objectives mainly depends upon the adequate Organisation of the entire training programme. About Organisation and administration of the Audio-Visual Education programme percentage of ratio is very low. Only 46% male principals/Heads of the Deptt. gave positive responses.

Only 44% female principals/Heads of the Deptt. gave positive responses. It means females face more difficulty than males in the field of Organisation and administration of the Audio-Visual Education Programme.

Male Principals face less difficulties because of their staff. They have more staff than female teacher's training colleges. Black-boards, Pictures, Charts, Maps, Posters, Flannel graphs etc. are the most commenly used teaching aids.

Equipment facilities are one of the very important item for the effective Organisation of the Audio-Visual Education programme. The investigation of the availability of the audio-visual aids and equipments in the colleges was therefore included in the study.

The Audio-Visual equipments are also important in the training programme only with such simple aids the purpose of Audio-Visual education may not be served fully as the advancement in science and technology.

For the development of Audio-Visual Education programme organisation and administration should be taken seriously by the colleges. But the data on this aspect are inadequate and responses from the colleges are very discouraging.

The trainees should be provided with the ideal learning situation for the effective training in Audio-Visual Education. The model list of such Audio-Visual aids and equipments and other facilities are as under :-

1. Flannel Graph
2. Flash Cards
3. Folder
4. Flip book
5. Photograph
6. Poster
7. Chart
8. Bulletin board with materials
9. Maps & graph
10. Circular Letter
11. Pamphlet
12. Sketches
13. Cartoons
14. Pictures
15. Diagram
16. Puppet
17. Model
18. Object

19. Specimen

20. Slide

21. Film Strip

22. 16 mm. motion picture

## Equipment -

01. 16 mm. movie projector

02. Film strip & Slide projector (35 mm.)

03. Over head Projector

04. Epidia Scope

05. Projection Screen

06. Radio

07. Tape recorder

08. Phonograph

09. Public address equipment

10. Electronic Generator (portable)

11. Treacing table

12. Camera

13. Silk screen printing equipment

14. Flannel board

15. Bulletin board

16. Study kit

17. Audio-Visual room (Laboratary)

18. Examination hall museum

19. Dark room

20. Vehicle for transport

## 6. Computer -

The sixth aspect of the study is about the computer application in Audio-visual education programme.

In this aspect the percentage of positive responses in both the section i.e. male or female is very high 60% male principals and 61% female principals posses their positive response. It means both are clearly recognised the importance of Computer in the present modern world.

Computers can play an important role in enhancing the efficiency of the teaching-learning process, to make trainees more creative and provide them with on individualised learning environment. In education process MICRO COMPUTERS are generally used. Micro Computers has many advantages such as -

1. They are small and portable.

2. They are relatively inexpensive.

3. They work as soon as they are switched on.

4. They have excellent GRAPHICS Capabilities

5. They do not occupy much space.

6. They do not consume much power.

In the more progressive countries, computers have become very much a part of college life. Computer are used today in the class-room for a variety purposes.

## TABLE - 4

### Assumptions of Lecturers of Teacher's Training Colleges on Audio-Visual Education

| FREQUENCIES | | | ASPECTS | | | | | | Chi-square of all the |
|---|---|---|---|---|---|---|---|---|---|
| Agree | Indefinite | Disagree | I | II | III | IV | V | VI | aspects $x^2$ |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 23 | 21 | 16 | + | − | − | + | − | − | 0.25 |
| 15 | 25 | 20 | − | − | + | + | − | − | 2.5 |
| 19 | 25 | 16 | − | + | − | − | − | + | 2.1 |
| 28 | 13 | 20 | + | − | + | − | − | + | 6.4* |
| 34 | 12 | 24 | + | + | − | − | + | + | 14.8** |
| 29 | 14 | 17 | − | − | + | + | − | + | 6.3* |
| 35 | 15 | 10 | + | + | + | − | + | + | 17.50** |
| 40 | 07 | 13 | + | + | + | − | + | + | 30.9** |
| 38 | 14 | 08 | + | + | − | + | + | + | 25.2** |
| 31 | 18 | 11 | − | − | + | 0 | − | + | 10.30* |
| 30 | 17 | 13 | − | − | + | + | + | + | 7.90* |
| 43 | 09 | 08 | + | − | + | + | + | + | 39.7** |
| 37 | 11 | 12 | − | + | + | + | + | + | 18.1** |
| 24 | 22 | 14 | + | − | − | − | + | − | 3.9 |
| 26 | 16 | 18 | + | − | − | + | − | − | 2.8 |
| 24 | 26 | 10 | + | − | + | 0 | + | + | 7.6* |
| 28 | 13 | 19 | − | + | − | − | + | + | 6.41* |
| 35 | 17 | 10 | + | + | − | − | + | − | 8.95* |
| 31 | 19 | 10 | − | − | + | + | + | − | 11.10* |
| 37 | 11 | 12 | + | + | + | − | − | + | 18.1** |
| 29 | 11 | 20 | − | + | + | − | − | + | 8.10* |
| 22 | 27 | 11 | 0 | + | − | + | − | + | 6.7* |
| 08 | 28 | 24 | + | + | + | − | + | + | 11.2* |
| 31 | 18 | 11 | + | + | + | + | + | + | 10.30* |

| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| 19 | 25 | 16 | − | − | − | + | − | + | 2.1 |
| 32 | 18 | 10 | − | + | + | − | + | + | 12.4** |
| 38 | 14 | 08 | + | + | + | − | + | + | 25.2** |
| 43 | 09 | 08 | + | + | + | 0 | + | + | 39.7** |
| 28 | 12 | 20 | + | − | + | + | − | + | 6.4* |
| 30 | 12 | 18 | − | + | + | + | + | + | 11.4** |
| 28 | 20 | 12 | − | − | + | − | − | + | 6.4* |
| 08 | 28 | 24 | + | + | − | + | + | + | 11.2* |
| 14 | 22 | 24 | − | + | + | − | + | + | 12.85** |
| 28 | 20 | 12 | − | − | − | + | − | + | 6.4* |
| 40 | 07 | 13 | + | + | + | − | + | + | 30.9** |
| 31 | 19 | 10 | + | + | − | + | + | + | 11.10* |
| 35 | 10 | 15 | + | + | + | − | + | + | 17.5** |
| 37 | 11 | 12 | + | + | − | + | + | + | 18.1** |
| 14 | 22 | 24 | + | + | − | + | + | + | 12.85** |
| 08 | 28 | 24 | + | − | + | − | + | + | 11.2* |
| 34 | 12 | 14 | + | + | − | + | − | + | 13.5** |
| 28 | 13 | 19 | − | − | + | + | − | + | 5.7 |
| 13 | 14 | 23 | − | + | − | − | − | + | 2.7 |
| 25 | 22 | 13 | + | − | − | − | + | − | 3.10 |
| 22 | 18 | 20 | − | + | − | − | − | + | 0.4 |
| 23 | 18 | 19 | − | − | + | − | − | − | 0.65 |
| 14 | 27 | 19 | − | + | − | − | + | − | 4.25 |
| 17 | 25 | 18 | − | − | + | − | − | − | 0.85 |
| 28 | 16 | 16 | − | + | − | − | − | − | 4.8 |
| 27 | 13 | 20 | + | − | − | + | − | − | 4.90 |
| 25 | 16 | 19 | − | + | − | − | − | − | 2.05 |
| 27 | 18 | 15 | + | − | 0 | − | − | − | 3.9 |
| 16 | 22 | 22 | + | − | + | − | − | − | 1.2 |
| 31 | 20 | 09 | − | + | + | − | + | + | 12.10** |
| 23 | 18 | 19 | − | − | + | − | − | − | 0.65 |

| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| 29 | 14 | 17 | + | − | − | + | − | − | 6.3* |
| 24 | 26 | 10 | + | − | − | − | + | + | 6.9* |
| 22 | 17 | 11 | + | + | − | − | + | + | 6.7* |
| 43 | 09 | 08 | + | + | + | 0 | − | + | 39.7** |
| 22 | 18 | 20 | − | + | − | + | − | + | 0.4 |
| 23 | 21 | 16 | + | − | − | + | + | − | 0.25 |
| 25 | 22 | 13 | − | + | − | − | + | − | 3.10 |
| 22 | 20 | 18 | − | + | − | + | 0 | − | 2.8 |
| 27 | 18 | 15 | − | − | + | − | − | + | 3.9 |
| 15 | 25 | 20 | + | + | − | − | + | − | 2.5 |
| 27 | 15 | 18 | + | − | − | + | − | − | 3.9 |
| 13 | 14 | 23 | − | + | − | − | + | − | 2.7 |
| 25 | 22 | 13 | + | − | + | − | − | − | 3.10 |
| 16 | 22 | 22 | 0 | + | − | − | + | − | 1.2 |
| 13 | 24 | 23 | − | − | + | + | − | − | 3.7 |
| 27 | 18 | 15 | + | − | − | − | 0 | + | 3.9 |
| 18 | 24 | 18 | − | − | + | − | − | + | 1.2 |
| 23 | 18 | 19 | − | − | + | − | − | − | 0.65 |
| 25 | 16 | 19 | + | + | − | − | − | − | 2.05 |
| 18 | 27 | 15 | − | − | + | − | − | + | 3.9 |
| 14 | 27 | 19 | − | − | + | + | − | − | 4.25 |
| 27 | 13 | 20 | − | + | − | − | + | + | 4.90 |
| 17 | 25 | 18 | + | − | + | − | − | + | 0.85 |
| 25 | 20 | 15 | − | + | − | + | + | − | 2.50 |
| 28 | 14 | 18 | − | − | + | − | − | + | 5.2 |
| 23 | 19 | 18 | − | − | + | − | − | + | 0.65 |
| 13 | 24 | 23 | + | − | − | − | + | − | 3.7 |
| 23 | 14 | 23 | − | + | − | + | − | + | 2.7 |
| 24 | 22 | 14 | − | + | − | + | − | − | 2.8 |
| 14 | 27 | 19 | + | − | − | − | + | + | 4.25 |

| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| 30 | 12 | 18 | + | + | − | + | + | + | 11.40** |
| 28 | 13 | 19 | + | − | + | + | − | − | 6.41* |
| 27 | 11 | 20 | + | − | − | + | + | + | 8.10* |
| 30 | 17 | 13 | + | + | − | + | − | + | 7.90* |
| 31 | 11 | 18 | + | − | + | − | + | − | 10.30* |
| 32 | 10 | 18 | − | + | + | + | + | + | 12.40** |
| 29 | 21 | 10 | + | − | − | + | − | + | 9.10* |
| 31 | 19 | 10 | + | − | + | + | + | − | 11.10* |
| 22 | 22 | 16 | − | + | − | + | − | + | 8.2* |
| 38 | 14 | 08 | + | + | + | 0 | + | 0 | 25.2** |
| 35 | 17 | 10 | − | + | + | − | + | + | 8.95* |
| 08 | 28 | 24 | + | + | + | − | + | − | 11.2** |
| 40 | 07 | 13 | + | + | + | − | − | + | 30.9** |
| 28 | 13 | 20 | + | − | − | + | + | + | 6.4* |
| 27 | 21 | 12 | + | − | + | − | − | + | 6.4* |

## Evaluation of the responses of Lecturers about Audio-Visual Education Programme -

The assumptions of lecturers of teachers training colleges had been measured in following 6 aspects -

1. Objective

2. Curriculum construction

3. Staff and Training

4. Financial Problems

5. Organisation and Administration

6. Computer

To study comparatively researcher gave sign (+) to more than 50% responses, sign (-) to less than 50% responses and 50% responses had been depicted by sign (0).

## Assumptions of Lecturers about 1st Aspect -

It is seen from the data that more than 56% males and 54% females gave positive responses about this aspect. If we see comparatively then we observe that percentage of male lecturers is high than the female lecturers. But it does not mean that the attitude of female lecturers is negative about this aspect. Further it is seen from the data that both the sections i.e. male or female gave their positive responses.

## Assumptions of Lecturers about 2nd Aspect -

Achievement of the objectives mainly depends upon the adequate organisation of the entire training programme.

Curriculum construction is one of the most important part of the Organisation. Most of lecturers of the teachers training colleges reports that their

curriculum is made by the Head of the Deptt. It appears that they are not included in making syllabus.

The data reveal that syllabus is taken for granted and considered as a matter of University administration. On one hand lecturers gave more than 50% positive responses on this aspect but on other hand it appears that, Colleges have a long way to go in modern process of curriculum development in which audio-visual educators, administrators, commercial producers of audio-visual materials, specialized education technologists and colleges are involved.

## 3. Responses on 3rd Aspect -

Staff is the executive machinery of the entire training programme. However, this is the major consideration of the investigation, some relevent facts collected are given below :-

## (A) Availability -

From the data it is found that the specialised Staff for Audio-Visual education in the teachers training colleges is very minimum.

**(B) Pay Scale of the Staff -**

There is Uniformity in the Scale as teachers are getting U.G.C. grades. It is found that no extra amount is paid to the specialised Staff of Audio-Visual Education.

**(C) Work load of the Staff -**

The important findings from the data is that almost all the staff members are considerably engaged in the other activities of the Colleges. It is found that the staff may not be specially employed for Audio-Visual Education Deptt. in the colleges.

There is no large scale acceptance of the Off-campus activities in the programme. It may be due to several reasons such as-lack of communication facilities, non availability of such places of visits with in the reach and funds with the colleges. However, this assumption requires an objective and systematic study of the barriers which lie beyond the scope of this research.

## 4. Responses on 4th aspect -

The main problem of the Audio-Visual education programme is about the availability of finance for the different acti ities of the programme. All the lecturers thought that for equipments and other facilities, most of the colleges spent very minimum amount. Lecturers recognised the importance of Audio-Visual Aids in training programme for that they also want to spent more amount for this aspect. But the availability of finance has no concern for them as they are not in the administrative field.

Most of the lecturers forced upon the use of cheap non-projected and graphic aids like the black-board, pictures, charts, maps, posters, flannel graphs etc and they should be encouraged as these do not required much expenses.

## 5. Responses on 5th Aspect -

The effective educational triangle consists of the teacher, the taught and the means to teach. A complete harmony between these three is very necessary. This harmony is achieved only by the

efficient organisation and administration. The percentage of male lecturers responses is 52% and female lecturers is 45%. It shows the positive apptitude against this aspect.

Lecturers feel some difficulties or problems in the field of Organisation of Audio-Visual education programme as felt by the Principals and Heads of the Deptt., of the colleges. But in administrative field their responses are indefinite because they are not closely associated with this field.

## 6. Responses of 6th aspect –

On this aspect lecturers of both section gave highest positive responses i.e. 65% for male lecturers and 60% for female lecturers. In this modern world of Science and technology every body recognizes the importance of computer.

On objectives, curriculum, equipment availability and trained staff so many problems are there in the way of Audio-Visual training programme.

Some lecturers thought that computer is also

used for simulation.

Computers are also used to help students to learn. We might use the computer to revise our literature course, or the teacher might use it in the literature classes to do a thematic Study. Most of the Computer assisted learning is done in a very enjoyable fashion and trainees enjoy this. Teachers use computer assisted learning to help some pupils to memorise work, others use it to join the pupils in investigation.

## TABLE - 5

### CLASSIFIED AND TABULATED SCORES OF PUPIL TEACHERS ACCORDING TO SUBJECT, CATEGORY AND SEX ON APPTITUDE ABOUT AUDIO-VISUAL EDUCATION

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 01. | Arts | -- | Male | -- | 038 |
| 02. | Arts | -- | Male | -- | 035 |
| 03. | Arts | -- | Male | -- | 046 |
| 04. | Arts | -- | Male | -- | 042 |
| 05. | Arts | -- | Male | -- | 047 |
| 06. | Arts | -- | Male | -- | 048 |
| 07. | Arts | -- | Male | -- | 042 |
| 08. | Arts | -- | Male | -- | 046 |
| 09. | Arts | -- | Male | -- | 043 |
| 10. | Arts | -- | Male | -- | 045 |
| 11. | Arts | -- | Male | -- | 049 |
| 12. | Arts | -- | Male | -- | 044 |
| 13. | Arts | -- | Male | -- | 048 |
| 14. | Arts | -- | Male | -- | 041 |
| 15. | Arts | -- | Male | -- | 042 |
| 16. | Arts | -- | Male | -- | 045 |
| 17. | Arts | -- | Male | -- | 044 |
| 18. | Arts | -- | Male | -- | 047 |
| 19. | Arts | -- | Male | -- | 040 |
| 20. | Arts | -- | Male | -- | 043 |
| 21. | Arts | -- | Male | -- | 048 |
| 22. | Arts | -- | Male | -- | 047 |
| 23. | Arts | -- | Male | -- | 044 |
| 24. | Arts | -- | Male | -- | 041 |
| 25. | Arts | -- | Male | -- | 045 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 26. | Arts | -- | Male | -- | 048 |
| 27. | Arts | -- | Male | -- | 047 |
| 28. | Arts | -- | Male | -- | 043 |
| 29. | Arts | -- | Male | -- | 040 |
| 30. | Arts | -- | Male | -- | 049 |
| 31. | Arts | -- | Male | -- | 048 |
| 32. | Arts | -- | Male | -- | 042 |
| 33. | Arts | -- | Male | -- | 052 |
| 34. | Arts | -- | Male | -- | 055 |
| 35. | Arts | -- | Male | -- | 050 |
| 36. | Arts | -- | Male | -- | 051 |
| 37. | Arts | -- | Male | -- | 057 |
| 38. | Arts | -- | Male | -- | 052 |
| 39. | Arts | -- | Male | -- | 053 |
| 40. | Arts | -- | Male | -- | 055 |
| 41. | Arts | -- | Male | -- | 055 |
| 42. | Arts | -- | Male | -- | 056 |
| 43. | Arts | -- | Male | -- | 057 |
| 44. | Arts | -- | Male | -- | 053 |
| 45. | Arts | -- | Male | -- | 059 |
| 46. | Arts | -- | Male | -- | 058 |
| 47. | Arts | -- | Male | -- | 054 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 48. | Arts | -- | Male | -- | 054 |
| 49. | Arts | -- | Male | -- | 050 |
| 50. | Arts | -- | Male | -- | 059 |
| 51. | Arts | -- | Male | -- | 057 |
| 52. | Arts | -- | Male | -- | 052 |
| 53. | Arts | -- | Male | -- | 052 |
| 54. | Arts | -- | Male | -- | 055 |
| 55. | Arts | -- | Male | -- | 058 |
| 56. | Arts | -- | Male | -- | 058 |
| 57. | Arts | -- | Male | -- | 050 |
| 58. | Arts | -- | Male | -- | 056 |
| 59. | Arts | -- | Male | -- | 057 |
| 60. | Arts | -- | Male | -- | 051 |
| 61. | Arts | -- | Male | -- | 052 |
| 62. | Arts | -- | Male | -- | 054 |
| 63. | Arts | -- | Male | -- | 053 |
| 64. | Arts | -- | Male | -- | 059 |
| 65. | Arts | -- | Male | -- | 054 |
| 66. | Arts | -- | Male | -- | 055 |
| 67. | Arts | -- | Male | -- | 056 |
| 68. | Arts | -- | Male | -- | 061 |
| 69. | Arts | -- | Male | -- | 065 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 70. | Arts | -- | Male | -- | 064 |
| 71. | Arts | -- | Male | -- | 067 |
| 72. | Arts | -- | Male | -- | 069 |
| 73. | Arts | -- | Male | -- | 069 |
| 74. | Arts | -- | Male | -- | 060 |
| 75. | Arts | -- | Male | -- | 063 |
| 76. | Arts | -- | Male | -- | 062 |
| 77. | Arts | -- | Male | -- | 064 |
| 78. | Arts | -- | Male | -- | 065 |
| 79. | Arts | -- | Male | -- | 065 |
| 80. | Arts | -- | Male | -- | 069 |
| 81.. | Arts | -- | Male | -- | 063 |
| 82. | Arts | -- | Male | -- | 063 |
| 83. | Arts | -- | Male | -- | 063 |
| 84. | Arts | -- | Male | -- | 060 |
| 85. | Arts | -- | Male | -- | 062 |
| 86. | Arts | -- | Male | -- | 061 |
| 87. | Arts | -- | Male | -- | 060 |
| 88. | Arts | -- | Male | -- | 064 |
| 89. | Arts | -- | Male | -- | 064 |
| 90. | Arts | -- | Male | -- | 068 |
| 91. | Arts | -- | Male | -- | 068 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 92. | Arts | -- | Male | -- | 069 |
| 93. | Arts | -- | Male | -- | 060 |
| 94. | Arts | -- | Male | -- | 062 |
| 95. | Arts | -- | Male | -- | 064 |
| 96. | Arts | -- | Male | -- | 065 |
| 97. | Arts | -- | Male | -- | 065 |
| 98. | Arts | -- | Male | -- | 067 |
| 99. | Arts | -- | Male | -- | 068 |
| 100. | Arts | -- | Male | -- | 069 |
| 101. | Arts | -- | Male | -- | 064 |
| 102. | Arts | -- | Male | -- | 064 |
| 103. | Arts | -- | Male | -- | 067 |
| 104. | Arts | -- | Male | -- | 066 |
| 105. | Arts | -- | Male | -- | 068 |
| 106. | Arts | -- | Male | -- | 069 |
| 107. | Arts | -- | Male | -- | 069 |
| 108. | Arts | -- | Male | -- | 062 |
| 109. | Arts | -- | Male | -- | 063 |
| 110. | Arts | -- | Male | -- | 068 |
| 111. | Arts | -- | Male | -- | 075 |
| 112. | Arts | -- | Male | -- | 077 |
| 113. | Arts | -- | Male | -- | 073 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 114. | Arts | -- | Male | -- | 078 |
| 115. | Arts | -- | Male | -- | 078 |
| 116( | Arts | -- | Male | -- | 070 |
| 117. | Arts | -- | Male | -- | 074 |
| 118. | Arts | -- | Male | -- | 075 |
| 119. | Arts | -- | Male | -- | 074 |
| 120. | Arts | -- | Male | -- | 074 |
| 121. | Arts | -- | Male | -- | 073 |
| 122. | Arts | -- | Male | -- | 077 |
| 123. | Arts | -- | Male | -- | 076 |
| 124. | Arts | -- | Male | -- | 079 |
| 125. | Arts | -- | Male | -- | 079 |
| 126. | Arts | -- | Male | -- | 070 |
| 127. | Arts | -- | Male | -- | 073 |
| 128. | Arts | -- | Male | -- | 074 |
| 129. | Arts | -- | Male | -- | 075 |
| 130. | Arts | -- | Male | -- | 075 |
| 131. | Arts | -- | Male | -- | 073 |
| 132. | Arts | -- | Male | -- | 073 |
| 133. | Arts | -- | Male | -- | 072 |
| 134. | Arts | -- | Male | -- | 072 |
| 135. | Arts | -- | Male | -- | 075 |
| 136. | Arts | -- | Male | -- | 076 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 137. | Arts | -- | Male | -- | 077 |
| 138. | Arts | -- | Male | -- | 077 |
| 139. | Arts | -- | Male | -- | 078 |
| 140. | Arts | -- | Male | -- | 079 |
| 141. | Arts | -- | Male | -- | 079 |
| 142. | Arts | -- | Male | -- | 076 |
| 143. | Arts | -- | Male | -- | 077 |
| 144. | Arts | -- | Male | -- | 077 |
| 145. | Arts | -- | Male | -- | 078 |
| 146. | Arts | -- | Male | -- | 078 |
| 147. | Arts | -- | Male | -- | 079 |
| 148. | Arts | -- | Male | -- | 074 |
| 149. | Arts | -- | Male | -- | 074 |
| 150. | Arts | -- | Male | -- | 075 |
| 151. | Arts | -- | Male | -- | 075 |
| 152. | Arts | -- | Male | -- | 076 |
| 153. | Arts | -- | Male | -- | 077 |
| 154. | Arts | -- | Male | -- | 072 |
| 155. | Arts | -- | Male | -- | 071 |
| 156. | Arts | -- | Male | -- | 070 |
| 157. | Arts | -- | Male | -- | 070 |
| 158. | Arts | -- | Male | -- | 074 |
| 159. | Arts | -- | Male | -- | 078 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 160. | Arts | -- | Male | -- | 075 |
| 161. | Arts | -- | Male | -- | 081 |
| 162. | Arts | -- | Male | -- | 084 |
| 163. | Arts | -- | Male | -- | 087 |
| 164. | Arts | -- | Male | -- | 088 |
| 165. | Arts | -- | Male | -- | 084 |
| 166. | Arts | -- | Male | -- | 084 |
| 167. | Arts | -- | Male | -- | 085 |
| 168. | Arts | -- | Male | -- | 086 |
| 169. | Arts | -- | Male | -- | 088 |
| 170. | Arts | -- | Male | -- | 084 |
| 171. | Arts | -- | Male | -- | 084 |
| 172. | Arts | -- | Male | -- | 084 |
| 173. | Arts | -- | Male | -- | 086 |
| 174. | Arts | -- | Male | -- | 087 |
| 175. | Arts | -- | Male | -- | 087 |
| 176. | Arts | -- | Male | -- | 083 |
| 177. | Arts | -- | Male | -- | 082 |
| 178. | Arts | -- | Male | -- | 080 |
| 179. | Arts | -- | Male | -- | 081 |
| 180. | Arts | -- | Male | -- | 087 |
| 181. | Arts | -- | Male | -- | 089 |
| 182. | Arts | -- | Male | -- | 089 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 183. | Arts | -- | Male | -- | 085 |
| 184. | Arts | -- | Male | -- | 085 |
| 185. | Arts | -- | Male | -- | 081 |
| 186. | Arts | -- | Male | -- | 081 |
| 187. | Arts | -- | Male | -- | 080 |
| 188. | Arts | -- | Male | -- | 080 |
| 189. | Arts | -- | Male | -- | 084 |
| 190. | Arts | -- | Male | -- | 085 |
| 191. | Arts | -- | Male | -- | 084 |
| 192. | Arts | -- | Male | -- | 084 |
| 193. | Arts | -- | Male | -- | 083 |
| 194. | Arts | -- | Male | -- | 086 |
| 195. | Arts | -- | Male | -- | 086 |
| 196. | Arts | -- | Male | -- | 087 |
| 197. | Arts | -- | Male | -- | 087 |
| 198. | Arts | -- | Male | -- | 088 |
| 199. | Arts | -- | Male | -- | 089 |
| 200. | Arts | -- | Male | -- | 089 |
| 201. | Arts | -- | Male | -- | 082 |
| 202. | Arts | -- | Male | -- | 083 |
| 203. | Arts | -- | Male | -- | 083 |
| 204. | Arts | -- | Male | -- | 084 |
| 205. | Arts | -- | Male | -- | 088 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 206. | Arts | -- | Male | -- | 087 |
| 207. | Arts | -- | Male | -- | 087 |
| 208. | Arts | -- | Male | -- | 084 |
| 209. | Arts | -- | Male | -- | 088 |
| 210. | Arts | -- | Male | -- | 089 |
| 211. | Arts | -- | Male | -- | 087 |
| 212. | Arts | -- | Male | -- | 087 |
| 213. | Arts | -- | Male | -- | 087 |
| 214. | Arts | -- | Male | -- | 087 |
| 215. | Arts | -- | Male | -- | 084 |
| 216. | Arts | -- | Male | -- | 085 |
| 217. | Arts | -- | Male | -- | 082 |
| 218. | Arts | -- | Male | -- | 081 |
| 219. | Arts | -- | Male | -- | 080 |
| 220. | Arts | -- | Male | -- | 080 |
| 221. | Arts | -- | Male | -- | 082 |
| 222. | Arts | -- | Male | -- | 082 |
| 223. | Arts | -- | Male | -- | 083 |
| 224. | Arts | -- | Male | -- | 083 |
| 225. | Arts | -- | Male | -- | 084 |
| 226. | Arts | -- | Male | -- | 085 |
| 227. | Arts | -- | Male | -- | 087 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 228. | Arts | -- | Male | -- | 082 |
| 229. | Arts | -- | Male | -- | 081 |
| 230. | Arts | -- | Male | -- | 081 |
| 231. | Arts | -- | Male | -- | 081 |
| 232. | Arts | -- | Male | -- | 080 |
| 233. | Arts | -- | Male | -- | 082 |
| 234. | Arts | -- | Male | -- | 084 |
| 235. | Arts | -- | Male | -- | 084 |
| 236. | Arts | -- | Male | -- | 084 |
| 237. | Arts | -- | Male | -- | 085 |
| 238. | Arts | -- | Male | -- | 086 |
| 239. | Arts | -- | Male | -- | 087 |
| 240. | Arts | -- | Male | -- | 084 |
| 241. | Arts | -- | Male | -- | 086 |
| 242. | Arts | -- | Male | -- | 082 |
| 243. | Arts | -- | Male | -- | 081 |
| 244. | Arts | -- | Male | -- | 080 |
| 245. | Arts | -- | Male | -- | 088 |
| 246. | Arts | -- | Male | -- | 092 |
| 247. | Arts | -- | Male | -- | 094 |
| 248. | Arts | -- | Male | -- | 098 |
| 249. | Arts | -- | Male | -- | 098 |
| 250. | Arts | -- | Male | -- | 097 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 251. | Arts | -- | Male | -- | 097 |
| 252. | Arts | -- | Male | -- | 097 |
| 253. | Arts | -- | Male | -- | 094 |
| 254. | Arts | -- | Male | -- | 093 |
| 255. | Arts | -- | Male | -- | 090 |
| 256. | Arts | -- | Male | -- | 092 |
| 257. | Arts | -- | Male | -- | 092 |
| 258. | Arts | -- | Male | -- | 093 |
| 259. | Arts | -- | Male | -- | 091 |
| 260. | Arts | -- | Male | -- | 091 |
| 261. | Arts | -- | Male | -- | 094 |
| 262. | Arts | -- | Male | -- | 095 |
| 263. | Arts | -- | Male | -- | 092 |
| 264. | Arts | -- | Male | -- | 092 |
| 265. | Arts | -- | Male | -- | 092 |
| 266. | Arts | -- | Male | -- | 094 |
| 267. | Arts | -- | Male | -- | 094 |
| 268. | Arts | -- | Male | -- | 094 |
| 269. | Arts | -- | Male | -- | 094 |
| 270. | Arts | -- | Male | -- | 096 |
| 271. | Arts | -- | Male | -- | 097 |
| 272. | Arts | -- | Male | -- | 098 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 273. | Arts | -- | Male | -- | 099 |
| 274. | Arts | -- | Male | -- | 094 |
| 275. | Arts | -- | Male | -- | 094 |
| 276. | Arts | -- | Male | -- | 095 |
| 277. | Arts | -- | Male | -- | 097 |
| 278. | Arts | -- | Male | -- | 092 |
| 279. | Arts | -- | Male | -- | 092 |
| 280. | Arts | -- | Male | -- | 092 |
| 281. | Arts | -- | Male | -- | 093 |
| 282. | Arts | -- | Male | -- | 098 |
| 283. | Arts | -- | Male | -- | 099 |
| 284. | Arts | -- | Male | -- | 090 |
| 285. | Arts | -- | Male | -- | 090 |
| 286. | Arts | -- | Male | -- | 094 |
| 287. | Arts | -- | Male | -- | 092 |
| 288. | Arts | -- | Male | -- | 092 |
| 289. | Arts | -- | Male | -- | 093 |
| 290. | Arts | -- | Male | -- | 098 |
| 291. | Arts | -- | Male | -- | 098 |
| 292. | Arts | -- | Male | -- | 098 |
| 293. | Arts | -- | Male | -- | 093 |
| 294. | Arts | -- | Male | -- | 099 |
| 295. | Arts | -- | Male | -- | 092 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 296. | Arts | -- | Male | -- | 092 |
| 297. | Arts | -- | Male | -- | 092 |
| 298. | Arts | -- | Male | -- | 090 |
| 299. | Arts | -- | Male | -- | 094 |
| 300. | Arts | -- | Male | -- | 098 |
| 301. | Arts | -- | Male | -- | 097 |
| 302. | Arts | -- | Male | -- | 096 |
| 303. | Arts | -- | Male | -- | 096 |
| 304. | Arts | -- | Male | -- | 092 |
| 305. | Arts | -- | Male | -- | 094 |
| 306. | Arts | -- | Male | -- | 096 |
| 307. | Arts | -- | Male | -- | 094 |
| 308. | Arts | -- | Male | -- | 095 |
| 309. | Arts | -- | Male | -- | 096 |
| 310. | Arts | -- | Male | -- | 096 |
| 311. | Arts | -- | Male | -- | 097 |
| 312. | Arts | -- | Male | -- | 090 |
| 313. | Arts | -- | Male | -- | 091 |
| 314. | Arts | -- | Male | -- | 091 |
| 315. | Arts | -- | Male | -- | 091 |
| 316. | Arts | -- | Male | -- | 092 |
| 317. | Arts | -- | Male | -- | 098 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 318. | Arts | -- | Male | -- | 099 |
| 319. | Arts | -- | Male | -- | 090 |
| 320. | Arts | -- | Male | -- | 090 |
| 321. | Arts | -- | Male | -- | 094 |
| 322. | Arts | -- | Male | -- | 093 |
| 323. | Arts | -- | Male | -- | 092 |
| 324. | Arts | -- | Male | -- | 092 |
| 325. | Arts | -- | Male | -- | 091 |
| 326. | Arts | -- | Male | -- | 093 |
| 327. | Arts | -- | Male | -- | 096 |
| 328. | Arts | -- | Male | -- | 096 |
| 329. | Arts | -- | Male | -- | 097 |
| 330. | Arts | -- | Male | -- | 098 |
| 331. | Arts | -- | Male | -- | 090 |
| 332. | Arts | -- | Male | -- | 092 |
| 333. | Arts | -- | Male | -- | 093 |
| 334. | Arts | -- | Male | -- | 096 |
| 335. | Arts | -- | Male | -- | 095 |
| 336. | Arts | -- | Male | -- | 101 |
| 337. | Arts | -- | Male | -- | 104 |
| 338. | Arts | -- | Male | -- | 106 |
| 339. | Arts | -- | Male | -- | 108 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 340. | Arts | -- | Male | -- | 108 |
| 341. | Arts | -- | Male | -- | 105 |
| 342. | Arts | -- | Male | -- | 105 |
| 343. | Arts | -- | Male | -- | 105 |
| 344. | Arts | -- | Male | -- | 105 |
| 345. | Arts | -- | Male | -- | 104 |
| 346. | Arts | -- | Male | -- | 103 |
| 347. | Arts | -- | Male | -- | 107 |
| 348. | Arts | -- | Male | -- | 107 |
| 349. | Arts | -- | Male | -- | 106 |
| 350. | Arts | -- | Male | -- | 106 |
| 351. | Arts | -- | Male | -- | 102 |
| 352. | Arts | -- | Male | -- | 102 |
| 353. | Arts | -- | Male | -- | 101 |
| 354. | Arts | -- | Male | -- | 101 |
| 355. | Arts | -- | Male | -- | 109 |
| 356. | Arts | -- | Male | -- | 109 |
| 357. | Arts | -- | Male | -- | 100 |
| 358. | Arts | -- | Male | -- | 100 |
| 359. | Arts | -- | Male | -- | 106 |
| 360. | Arts | -- | Male | -- | 105 |
| 361. | Arts | -- | Male | -- | 107 |
| 362. | Arts | -- | Male | -- | 103 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 363. | Arts | -- | Male | -- | 103 |
| 364. | Arts | -- | Male | -- | 109 |
| 365. | Arts | -- | Male | -- | 108 |
| 366. | Arts | -- | Male | -- | 108 |
| 367. | Arts | -- | Male | -- | 107 |
| 368. | Arts | -- | Male | -- | 104 |
| 369. | Arts | -- | Male | -- | 106 |
| 370. | Arts | -- | Male | -- | 106 |
| 371. | Arts | -- | Male | -- | 106 |
| 372. | Arts | -- | Male | -- | 100 |
| 373. | Arts | -- | Male | -- | 100 |
| 374. | Arts | -- | Male | -- | 102 |
| 375. | Arts | -- | Male | -- | 101 |
| 376. | Arts | -- | Male | -- | 104 |
| 377. | Arts | -- | Male | -- | 107 |
| 378. | Arts | -- | Male | -- | 108 |
| 379. | Arts | -- | Male | -- | 109 |
| 380. | Arts | -- | Male | -- | 106 |
| 381. | Arts | -- | Male | -- | 106 |
| 382. | Arts | -- | Male | -- | 104 |
| 383. | Arts | -- | Male | -- | 101 |
| 384. | Arts | -- | Male | -- | 108 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 385. | Arts | -- | Male | -- | 108 |
| 386. | Arts | -- | Male | -- | 111 |
| 387. | Arts | -- | Male | -- | 118 |
| 388. | Arts | -- | Male | -- | 112 |
| 389. | Arts | -- | Male | -- | 114 |
| 390. | Arts | -- | Male | -- | 115 |
| 391. | Arts | -- | Male | -- | 115 |
| 392. | Arts | -- | Male | -- | 116 |
| 393. | Arts | -- | Male | -- | 111 |
| 394. | Arts | -- | Male | -- | 110 |
| 395. | Arts | -- | Male | -- | 110 |
| 396. | Arts | -- | Male | -- | 110 |
| 397. | Arts | -- | Male | -- | 110 |
| 398. | Arts | -- | Male | -- | 113 |
| 399. | Arts | -- | Male | -- | 114 |
| 400. | Arts | -- | Male | -- | 117 |
| 401. | Arts | -- | Male | -- | 116 |
| 402. | Arts | -- | Male | -- | 115 |
| 403. | Arts | -- | Male | -- | 112 |
| 404. | Arts | -- | Male | -- | 113 |
| 405. | Arts | -- | Male | -- | 114 |
| 406. | Arts | -- | Male | -- | 114 |
| 407. | Arts | -- | Male | -- | 116 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 408. | Arts | -- | Male | -- | 116 |
| 409. | Arts | -- | Male | -- | 118 |
| 410. | Arts | -- | Male | -- | 111 |
| 411. | Arts | -- | Male | -- | 110 |
| 412. | Arts | -- | Male | -- | 110 |
| 413. | Arts | -- | Male | -- | 119 |
| 414. | Arts | -- | Male | -- | 118 |
| 415. | Arts | -- | Male | -- | 111 |
| 416. | Arts | -- | Male | -- | 112 |
| 417. | Arts | -- | Male | -- | 115 |
| 418. | Arts | -- | Male | -- | 116 |
| 419. | Arts | -- | Male | -- | 117 |
| 420. | Arts | -- | Male | -- | 119 |
| 421. | Arts | -- | -- | Female | 024 |
| 422. | Arts | -- | -- | Female | 036 |
| 423. | Arts | -- | -- | Female | 039 |
| 424. | Arts | -- | -- | Female | 042 |
| 425. | Arts | -- | -- | Female | 043 |
| 426. | Arts | -- | -- | Female | 047 |
| 427. | Arts | -- | -- | Female | 047 |
| 428. | Arts | -- | -- | Female | 046 |
| 429. | Arts | -- | -- | Female | 049 |
| 430. | Arts | -- | -- | Female | 048 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 431. | Arts | -- | -- | Female | 042 |
| 432. | Arts | -- | -- | Female | 043 |
| 433. | Arts | -- | -- | Female | 044 |
| 434. | Arts | -- | -- | Female | 054 |
| 435. | Arts | -- | -- | Female | 057 |
| 436. | Arts | -- | -- | Female | 057 |
| 437. | Arts | -- | -- | Female | 052 |
| 438. | Arts | -- | -- | Female | 053 |
| 439. | Arts | -- | -- | Female | 059 |
| 440. | Arts | -- | -- | Female | 059 |
| 441. | Arts | -- | -- | Female | 050 |
| 442. | Arts | -- | -- | Female | 054 |
| 443. | Arts | -- | -- | Female | 056 |
| 444. | Arts | -- | -- | Female | 056 |
| 445. | Arts | -- | -- | Female | 053 |
| 446. | Arts | -- | -- | Female | 058 |
| 447. | Arts | -- | -- | Female | 058 |
| 448. | Arts | -- | -- | Female | 059 |
| 449. | Arts | -- | -- | Female | 054 |
| 450. | Arts | -- | -- | Female | 055 |
| 451. | Arts | -- | -- | Female | 060 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 452. | Arts | -- | -- | Female | 065 |
| 453. | Arts | -- | -- | Female | 067 |
| 454. | Arts | -- | -- | Female | 067 |
| 455. | Arts | -- | -- | Female | 068 |
| 456. | Arts | -- | -- | Female | 069 |
| 457. | Arts | -- | -- | Female | 069 |
| 458. | Arts | -- | -- | Female | 065 |
| 459. | Arts | -- | -- | Female | 064 |
| 460. | Arts | -- | -- | Female | 064 |
| 461. | Arts | -- | -- | Female | 064 |
| 462. | Arts | -- | -- | Female | 063 |
| 463. | Arts | -- | -- | Female | 060 |
| 464. | Arts | -- | -- | Female | 060 |
| 465. | Arts | -- | -- | Female | 061 |
| 466. | Arts | -- | -- | Female | 067 |
| 467. | Arts | -- | -- | Female | 066 |
| 468. | Arts | -- | -- | Female | 064 |
| 469. | Arts | -- | -- | Female | 072 |
| 470. | Arts | -- | -- | Female | 072 |
| 471. | Arts | -- | -- | Female | 075 |
| 472. | Arts | -- | -- | Female | 078 |
| 473. | Arts | -- | -- | Female | 079 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 474. | Arts | -- | -- | Female | 070 |
| 475. | Arts | -- | -- | Female | 070 |
| 476. | Arts | -- | -- | Female | 074 |
| 477. | Arts | -- | -- | Female | 077 |
| 478. | Arts | -- | -- | Female | 077 |
| 479. | Arts | -- | -- | Female | 076 |
| 480. | Arts | -- | -- | Female | 072 |
| 481. | Arts | -- | -- | Female | 073 |
| 482. | Arts | -- | -- | Female | 074 |
| 483. | Arts | -- | -- | Female | 071 |
| 484. | Arts | -- | -- | Female | 082 |
| 485. | Arts | -- | -- | Female | 085 |
| 486. | Arts | -- | -- | Female | 085 |
| 487. | Arts | -- | -- | Female | 086 |
| 488. | Arts | -- | -- | Female | 088 |
| 489. | Arts | -- | -- | Female | 088 |
| 490. | Arts | -- | -- | Female | 084 |
| 491. | Arts | -- | -- | Female | 083 |
| 492. | Arts | -- | -- | Female | 083 |
| 493. | Arts | -- | -- | Female | 082 |
| 494. | Arts | -- | -- | Female | 081 |
| 495. | Arts | -- | -- | Female | 081 |
| 496. | Arts | -- | -- | Female | 080 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 497. | Arts | -- | -- | Female | 080 |
| 498. | Arts | -- | -- | Female | 086 |
| 499. | Arts | -- | -- | Female | 086 |
| 500. | Arts | -- | -- | Female | 087 |
| 501. | Arts | -- | -- | Female | 082 |
| 502. | Arts | -- | -- | Female | 081 |
| 503. | Arts | -- | -- | Female | 081 |
| 504. | Arts | -- | -- | Female | 084 |
| 505. | Arts | -- | -- | Female | 084 |
| 506. | Arts | -- | -- | Female | 083 |
| 507. | Arts | -- | -- | Female | 083 |
| 508. | Arts | -- | -- | Female | 088 |
| 509. | Arts | -- | -- | Female | 094 |
| 510. | Arts | -- | -- | Female | 097 |
| 511. | Arts | -- | -- | Female | 092 |
| 512. | Arts | -- | -- | Female | 093 |
| 513. | Arts | -- | -- | Female | 098 |
| 514. | Arts | -- | -- | Female | 097 |
| 515. | Arts | -- | -- | Female | 097 |
| 516. | Arts | -- | -- | Female | 090 |
| 517. | Arts | -- | -- | Female | 090 |
| 518. | Arts | -- | -- | Female | 094 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 519. | Arts | -- | -- | Female | 095 |
| 520. | Arts | -- | -- | Female | 095 |
| 521. | Arts | -- | -- | Female | 097 |
| 522. | Arts | -- | -- | Female | 097 |
| 523. | Arts | -- | -- | Female | 096 |
| 524. | Arts | -- | -- | Female | 096 |
| 525. | Arts | -- | -- | Female | 095 |
| 526. | Arts | -- | -- | Female | 095 |
| 527. | Arts | -- | -- | Female | 094 |
| 528. | Arts | -- | -- | Female | 092 |
| 529. | Arts | -- | -- | Female | 098 |
| 530. | Arts | -- | -- | Female | 102 |
| 531. | Arts | -- | -- | Female | 103 |
| 532. | Arts | -- | -- | Female | 103 |
| 533. | Arts | -- | -- | Female | 104 |
| 534. | Arts | -- | -- | Female | 109 |
| 535. | Arts | -- | -- | Female | 108 |
| 536. | Arts | -- | -- | Female | 108 |
| 537. | Arts | -- | -- | Female | 108 |
| 538. | Arts | -- | -- | Female | 100 |
| 539. | Arts | -- | -- | Female | 100 |
| 540. | Arts | -- | -- | Female | 102 |
| 541. | Arts | -- | -- | Female | 102 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 542. | Arts | -- | -- | Female | 106 |
| 543. | Arts | -- | -- | Female | 105 |
| 544. | Arts | -- | -- | Female | 105 |
| 545. | Arts | -- | -- | Female | 104 |
| 546. | Arts | -- | -- | Female | 102 |
| 547. | Arts | -- | -- | Female | 104 |
| 548. | Arts | -- | -- | Female | 105 |
| 549. | Arts | -- | -- | Female | 106 |
| 550. | Arts | -- | -- | Female | 108 |
| 551. | Arts | -- | -- | Female | 113 |
| 552. | Arts | -- | -- | Female | 114 |
| 553. | Arts | -- | -- | Female | 112 |
| 554. | Arts | -- | -- | Female | 111 |
| 555. | Arts | -- | -- | Female | 115 |
| 556. | Arts | -- | -- | Female | 114 |
| 557. | Arts | -- | -- | Female | 114 |
| 558. | Arts | -- | -- | Female | 111 |
| 559. | Arts | -- | -- | Female | 116 |
| 560. | Arts | -- | -- | Female | 112 |
| 561. | — | Science | Male | -- | 009 |
| 562. | -- | Science | Male | -- | 042 |
| 563. | -- | Science | Male | -- | 046 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 564. | -- | Science | Male | -- | 043 |
| 565. | -- | Science | Male | -- | 045 |
| 566. | -- | Science | Male | -- | 045 |
| 567. | -- | Science | Male | -- | 042 |
| 568. | -- | Science | Male | -- | 048 |
| 569. | -- | Science | Male | -- | 047 |
| 570. | -- | Science | Male | -- | 047 |
| 571. | -- | Science | Male | -- | 046 |
| 572. | -- | Science | Male | -- | 046 |
| 573. | -- | Science | Male | -- | 045 |
| 574. | -- | Science | Male | -- | 041 |
| 575. | -- | Science | Male | -- | 054 |
| 576. | -- | Science | Male | -- | 057 |
| 577. | -- | Science | Male | -- | 057 |
| 578. | -- | Science | Male | -- | 052 |
| 579. | -- | Science | Male | -- | 051 |
| 580. | -- | Science | Male | -- | 051 |
| 581. | -- | Science | Male | -- | 050 |
| 582. | -- | Science | Male | -- | 056 |
| 583. | -- | Science | Male | -- | 056 |
| 584. | -- | Science | Male | -- | 052 |
| 585. | -- | Science | Male | -- | 053 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 586. | -- | Science | Male | -- | 055 |
| 587. | -- | Science | Male | -- | 062 |
| 588. | -- | Science | Male | -- | 064 |
| 589. | -- | Science | Male | -- | 068 |
| 590. | -- | Science | Male | -- | 068 |
| 591. | -- | Science | Male | -- | 062 |
| 592. | -- | Science | Male | -- | 064 |
| 593. | -- | Science | Male | -- | 067 |
| 594. | -- | Science | Male | -- | 067 |
| 595. | -- | Science | Male | -- | 065 |
| 596. | -- | Science | Male | -- | 065 |
| 597. | -- | Science | Male | -- | 061 |
| 598. | -- | Science | Male | -- | 060 |
| 599. | -- | Science | Male | -- | 062 |
| 600. | -- | Science | Male | -- | 066 |
| 601. | -- | Science | Male | -- | 072 |
| 602. | -- | Science | Male | -- | 077 |
| 603. | -- | Science | Male | -- | 078 |
| 604. | -- | Science | Male | -- | 078 |
| 605. | -- | Science | Male | -- | 076 |
| 606. | -- | Science | Male | -- | 076 |
| 607. | -- | Science | Male | -- | 076 |
| 608. | -- | Science | Male | -- | 072 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 609. | -- | Science | Male | -- | 071 |
| 610. | -- | Science | Male | -- | 070 |
| 611. | -- | Science | Male | -- | 074 |
| 612. | -- | Science | Male | -- | 077 |
| 613. | -- | Science | Male | -- | 075 |
| 614. | -- | Science | Male | -- | 073 |
| 615. | -- | Science | Male | -- | 079 |
| 616. | -- | Science | Male | -- | 073 |
| 617. | -- | Science | Male | -- | 077 |
| 618. | -- | Science | Male | -- | 072 |
| 619. | -- | Science | Male | -- | 072 |
| 620. | -- | Science | Male | -- | 072 |
| 621. | -- | Science | Male | -- | 072 |
| 622. | -- | Science | Male | -- | 075 |
| 623. | -- | Science | Male | -- | 077 |
| 624. | -- | Science | Male | -- | 084 |
| 625. | -- | Science | Male | -- | 087 |
| 626. | -- | Science | Male | -- | 082 |
| 627. | -- | Science | Male | -- | 082 |
| 628. | -- | Science | Male | -- | 080 |
| 629. | -- | Science | Male | -- | 080 |
| 630. | -- | Science | Male | -- | 082 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 631. | -- | Science | Male | -- | 089 |
| 632. | -- | Science | Male | -- | 084 |
| 633. | -- | Science | Male | -- | 088 |
| 634. | -- | Science | Male | -- | 086 |
| 635. | -- | Science | Male | -- | 086 |
| 636. | -- | Science | Male | -- | 080 |
| 637. | -- | Science | Male | -- | 089 |
| 638. | -- | Science | Male | -- | 089 |
| 639. | -- | Science | Male | -- | 087 |
| 640. | -- | Science | Male | -- | 081 |
| 641. | -- | Science | Male | -- | 083 |
| 642. | -- | Science | Male | -- | 084 |
| 643. | -- | Science | Male | -- | 082 |
| 644. | -- | Science | Male | -- | 097 |
| 645. | -- | Science | Male | -- | 092 |
| 646. | -- | Science | Male | -- | 092 |
| 647. | -- | Science | Male | -- | 092 |
| 648. | -- | Science | Male | -- | 094 |
| 649. | -- | Science | Male | -- | 097 |
| 650. | -- | Science | Male | -- | 099 |
| 651. | -- | Science | Male | -- | 092 |
| 652. | -- | Science | Male | -- | 090 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 653. | -- | Science | Male | -- | 095 |
| 654. | -- | Science | Male | -- | 095 |
| 655. | -- | Science | Male | -- | 096 |
| 656. | -- | Science | Male | -- | 093 |
| 657. | -- | Science | Male | -- | 094 |
| 658. | -- | Science | Male | -- | 093 |
| 659. | -- | Science | Male | -- | 093 |
| 660. | -- | Science | Male | -- | 097 |
| 661. | -- | Science | Male | -- | 098 |
| 662. | -- | Science | Male | -- | 096 |
| 663. | -- | Science | Male | -- | 097 |
| 664. | -- | Science | Male | -- | 092 |
| 665. | -- | Science | Male | -- | 094 |
| 666. | -- | Science | Male | -- | 093 |
| 667. | -- | Science | Male | -- | 092 |
| 668. | -- | Science | Male | -- | 104 |
| 669. | -- | Science | Male | -- | 105 |
| 670. | -- | Science | Male | -- | 109 |
| 671. | -- | Science | Male | -- | 109 |
| 672. | -- | Science | Male | -- | 107 |
| 673. | -- | Science | Male | -- | 103 |
| 674. | -- | Science | Male | -- | 103 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 675. | -- | Science | Male | -- | 103 |
| 676. | -- | Science | Male | -- | 106 |
| 677. | -- | Science | Male | -- | 107 |
| 678. | -- | Science | Male | -- | 101 |
| 679. | -- | Science | Male | -- | 100 |
| 680. | -- | Science | Male | -- | 109 |
| 681. | -- | Science | Male | -- | 108 |
| 682. | -- | Science | Male | -- | 108 |
| 683. | -- | Science | Male | -- | 107 |
| 684. | -- | Science | Male | -- | 107 |
| 685. | -- | Science | Male | -- | 105 |
| 686. | -- | Science | Male | -- | 105 |
| 687. | -- | Science | Male | -- | 104 |
| 688. | -- | Science | Male | -- | 104 |
| 689. | -- | Science | Male | -- | 109 |
| 690. | -- | Science | Male | -- | 113 |
| 691. | -- | Science | Male | -- | 113 |
| 692. | -- | Science | Male | -- | 113 |
| 693. | -- | Science | Male | -- | 112 |
| 694. | -- | Science | Male | -- | 115 |
| 695. | -- | Science | Male | -- | 114 |
| 696. | -- | Science | Male | -- | 114 |
| 697. | -- | Science | Male | -- | 117 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 698. | -- | Science | Male | -- | 117 |
| 699. | -- | Science | Male | -- | 116 |
| 700. | -- | Science | Male | -- | 119 |
| 701. | -- | Science | -- | Female | 036 |
| 702. | -- | Science | -- | Female | 037 |
| 703. | -- | Science | -- | Female | 033 |
| 704. | -- | Science | -- | Female | 047 |
| 705. | -- | Science | -- | Female | 047· |
| 706. | -- | Science | -- | Female | 042 |
| 707. | -- | Science | -- | Female | 041 |
| 708. | -- | Science | -- | Female | 040 |
| 709. | -- | Science | -- | Female | 040 |
| 710. | -- | Science | -- | Female | 045 |
| 711. | -- | Science | -- | Female | 046 |
| 712. | -- | Science | -- | Female | 047 |
| 713. | -- | Science | -- | Female | 045 |
| 714. | -- | Science | -- | Female | 057 |
| 715. | -- | Science | -- | Female | 058 |
| 716. | -- | Science | -- | Female | 058 |
| 717. | -- | Science | -- | Female | 051 |
| 718. | -- | Science | -- | Female | 050 |
| 719. | -- | Science | -- | Female | 053 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 720. | -- | Science | -- | Female | 056 |
| 721. | -- | Science | -- | Female | 057 |
| 722. | -- | Science | -- | Female | 059 |
| 723. | -- | Science | -- | Female | 054 |
| 724. | -- | Science | -- | Female | 062 |
| 725. | -- | Science | -- | Female | 064 |
| 726. | -- | Science | -- | Female | 062 |
| 727. | -- | Science | -- | Female | 068 |
| 728. | -- | Science | -- | Female | 069 |
| 729. | -- | Science | -- | Female | 060 |
| 730. | -- | Science | -- | Female | 060 |
| 731. | -- | Science | -- | Female | 064 |
| 732. | -- | Science | -- | Female | 064 |
| 733. | -- | Science | -- | Female | 067 |
| 734. | -- | Science | -- | Female | 063 |
| 735. | -- | Science | -- | Female | 062 |
| 736. | -- | Science | -- | Female | 067 |
| 737. | -- | Science | -- | Female | 076 |
| 738. | -- | Science | -- | Female | 072 |
| 739. | -- | Science | -- | Female | 073 |
| 740. | -- | Science | -- | Female | 077 |
| 741. | -- | Science | -- | Female | 077 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 742. | -- | Science | -- | Female | 074 |
| 743. | -- | Science | -- | Female | 076 |
| 744. | -- | Science | -- | Female | 073 |
| 745. | -- | Science | -- | Female | 072 |
| 746. | -- | Science | -- | Female | 071 |
| 747. | -- | Science | -- | Female | 071 |
| 748. | -- | Science | -- | Female | 070 |
| 749. | -- | Science | -- | Female | 074 |
| 750. | -- | Science | -- | Female | 082 |
| 751. | -- | Science | -- | Female | 084 |
| 752. | -- | Science | -- | Female | 086 |
| 753. | -- | Science | -- | Female | 086 |
| 754. | -- | Science | -- | Female | 080 |
| 755. | -- | Science | -- | Female | 080 |
| 756. | -- | Science | -- | Female | 082 |
| 757. | -- | Science | -- | Female | 087 |
| 758. | -- | Science | -- | Female | 088 |
| 759. | -- | Science | -- | Female | 089 |
| 760. | -- | Science | -- | Female | 083 |
| 761. | -- | Science | -- | Female | 082 |
| 762. | -- | Science | -- | Female | 085 |
| 763. | -- | Science | -- | Female | 085 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 764. | -- | Science | -- | Female | 081 |
| 765. | -- | Science | -- | Female | 083 |
| 766. | -- | Science | -- | Female | 080 |
| 767. | -- | Science | -- | Female | 084 |
| 768. | -- | Science | -- | Female | 099 |
| 769. | -- | Science | -- | Female | 094 |
| 770. | -- | Science | -- | Female | 097 |
| 771. | -- | Science | -- | Female | 096 |
| 772. | -- | Science | -- | Female | 096 |
| 773. | -- | Science | -- | Female | 093 |
| 774. | -- | Science | -- | Female | 092 |
| 775. | -- | Science | -- | Female | 091 |
| 776. | -- | Science | -- | Female | 090 |
| 777. | -- | Science | -- | Female | 090 |
| 778. | -- | Science | -- | Female | 090 |
| 779. | -- | Science | -- | Female | 090 |
| 780. | -- | Science | -- | Female | 097 |
| 781. | -- | Science | -- | Female | 093 |
| 782. | -- | Science | -- | Female | 097 |
| 783. | -- | Science | -- | Female | 104 |
| 784. | -- | Science | -- | Female | 105 |

| Sl. No. | ARTS | SCIENCE | MALE | FEMALE | SCORES |
|---------|------|---------|------|--------|--------|
| 785. | -- | Science | -- | Female | 100 |
| 786. | -- | Science | -- | Female | 102 |
| 787. | -- | Science | -- | Female | 104 |
| 788. | -- | Science | -- | Female | 112 |
| 789. | -- | Science | -- | Female | 112 |
| 790. | -- | Science | -- | Female | 115 |
| 791. | -- | Science | -- | Female | 118 |
| 792. | -- | Science | -- | Female | 119 |
| 793. | -- | Science | -- | Female | 114 |
| 794. | -- | Science | -- | Female | 113 |
| 795. | -- | Science | -- | Female | 112 |
| 796. | -- | Science | -- | Female | 117 |
| 797. | -- | Science | -- | Female | 116 |
| 798. | -- | Science | -- | Female | 114 |
| 799. | -- | Science | -- | Female | 113 |
| 800. | -- | Science | -- | Female | 116 |

## Apptitude of pupil teacher about Audio-Visual Education in teachers training deptt. -

. With a view of making the study more critical and comparative the responses of pupil teachers were analysed on the basis of Sex and Subject category. Firstly the mean. Standard deviation, standard error and T. Score were find out and then to find the significant difference between two groups F. Variance would be find out. As a raw data researcher get 837 responses from pupil teachers of all categories. To make the round figure 37 responses which are irrelevent in nature rejected. So the final number of sample becomes 800 as shown in the Table No. 2.

## Comparative study of Apptitude of Male pupil teachers (Arts) and female pupil teachers (Arts)

In table (6) the mean of male pupil teachers 83.19 is more than the mean of female pupil teachers 80.36. Their T. Score is 1.426 that is not significant on 0.05 level.

It means that in the field of Audio-Visual Education the apptitude of male pupil teacher is

## TABLE - 6

### APPTITUDE OF MALE PUPIL TEACHERS (Arts)

### AND

### FEMALE PUPIL TEACHERS (Arts)

| S.No. | CATEGORY | NO. OF PUPIL TEACHERS | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | T. SCORE |
|-------|----------|------------------------|------|--------------------|-----------------|---------------------|----------|
| 01. | Male Pupil Teacher (Arts) | 420 | 83.19 | 19.87 | 0.969 | | |
| 02. | Female Pupil Teacher (Arts) | 140 | 80.36 | 21.56 | 1.820 | 558 | 1.426 |
| | TOTAL : | 560 | | | | | |

slightly wider than the female pupil teacher. There is no greater difference in the apptitude of Male and Female teachers. There are so many other causes that effects a person's apptitude. Researcher found that female pupil teacher is generally bound within certain limits, besides male pupil teachers are free to move. That is why they are able to understand and recognised the changes going on in the present modern world. So that male pupil teachersare able to know the importance of modern techniques in education. Due to their social condition male pupil teachers show their positive apptitude towards Audio-Visual Education than female pupil teachers.

## Comparative study of Apptitude of male pupil teachers (Science) and Female pupil teachers (Science) -

In table (7) the mean of male pupil teacher 81.714 is more than the mean of female pupil teacher 79.00. Their T. Score is 0.939 that is not significant at 0.05 level.

In means there is very nominal difference between the apptitude of male & female teachers. By the interpretation of data it is found that in the field of

## TABLE - 7

### APPTITUDE OF MALE PUPIL TEACHERS (SCIENCE)

#### AND

### FEMALE PUPIL TEACHERS (SCIENCE)

| S.No. | CATEGORY | NO. OF PUPIL TEACHERS | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | T. SCORE |
|-------|----------|----------------------|------|-------------------|----------------|-------------------|----------|
| 01. | Male Pupil Teacher (Science) | 140 | 81.714 | 21.63 | 1.828 | 238 | 0.939 |
| 02. | Female pupil Teacher (Science) | 100 | 79.000 | 22.49 | 2.250 | | |
| | TOTAL : | 240 | | | | | |

Audio-Visual Education the apptitude of male pupil teacher is slightly greater than the female pupil teacher. Although both the category of pupil teachers recognised the importance of Audio-Visual aids in Science teaching. But male pupil teacher show more positive responses than the female ones. It is realized by the researcher that the availability of Audio-Visual material is one of the most important cause of less use by female teacher. Female pupil teacher have to face difficulty in getting Audio-Visual Material.

Social system of our society does not allow female pupil teachers to go here and there in search of Audio-Visual Material. Male pupil teacher can arrange materials and equipments from here and there that is why their apptitude is wider than the female pupil teachers.

## Interpretation of apptitude of female pupil teachers (Science) and female pupil teachers (Arts) -

In table (8) the mean of pupil teachers (Arts) 80.36 is more than the pupil teacher (Science) 79.00 and their T. score is 0.471 that is not significant on 0.05 level.

# TABLE - 8

## APPTITUDE OF FEMALE PUPIL TEACHER (SCIENCE)

### AND

### FEMALE PUPIL TEACHER (ARTS)

| S.No. | CATEGORY | NO. OF PUPIL TEACHERS | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | T. SCORE |
|-------|----------|----------------------|------|--------------------|-----------------|--------------------|----------|
| 01. | Pupil teacher (Science) female | 100 | 79.00 | 22.49 | 2.25 | | |
| 02. | Pupil teacher (Arts) Female | 140 | 80.36 | 21.56 | 1.822 | 238 | 0.471 |
| | TOTAL : | 240 | | | | | |

By the interpretation of data it is found that in the field of Audio-Visual Education the apptitude of pupil teachers (Arts) is greater than the female pupil teachers (Science). In this category also expensiveness, proper availability of the Audio-Visual materials and sufficient financial aids to the training colleges etc. are the main causes of less use of Audio Visual aids.

Because of these causes Science pupil teachers are not able to use Audio-Visual aids more frequently. In almost all the female training institutions have not its own laboratary facility for Science pupil teachers. That is why they show their less apptitude towards Audio-Visual Education.

## Interpretation of the apptitude of male pupil teacher (Science) and male pupil teacher (Arts) -

In the table (9) the mean of male pupil teacher (Science) 81.714 is less than the mean of male pupil teachers (Arts) 83.19. Their T. Score is 0.743 that is not significant on 0.05 level.

**TABLE - 9**

APPTITUDE OF MALE PUPIL TEACHER (SCIENCE)

AND

MALE PUPIL TEACHER (ARTS)

:-

| S.No. | CATEGORY | NO. OF PUPIL TEACHERS | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | T. SCORE |
|-------|----------|----------------------|------|--------------------|----------------|--------------------|----------|
| 01. | Pupil teacher (Science) Male | 140 | 81.714 | 21.63 | 1.828 | 588 | 0.743 |
| 02. | Pupil teacher (Arts) Male | 420 | 83.19 | 19.87 | 0.969 | | |
| | TOTAL : | 560 | | | | | |

In the section of male pupil teacher there is difference in Science and Arts category. Pupil teacher (Arts) response more positively about Audio-Visual Education than the Science pupil teacher. It is found in the study it is only due to the expensiveness, lack of availability of materials and negligence of training institution etc.

In the case of Science pupil teacher high prices of equipments and materials plays a vital role because Audio-Visual aids on Science subjects is more costly than the arts subjects.

## Analysis of Variance -

According to the hypothesis the apptitude of pupil teachers is also interpretated by Analysis of Variance (F. Variance). By F.Variance all the sub categories of pupil teacher is analysed. The Significance of F. Variance is determined on 0.05 level. The value of F. Variance at 0.05 level is 1.96.

## Male pupil teachers (Arts) and
## Female pupil teachers (Arts) -

IN table (10) the F. Variance of pupil teachers is 1.183. That is not significant at 0.05 level. The T.

## TABLE - 10

TABLE SHOWS THE MEAN, STANDARD DEVIATION, STANDARD ERROR AND F VARIANCE OF THE APPTITUDE OF MALE PUPIL TEACHERS (ARTS)

AND

FEMALE PUPIL TEACHERS (ARTS)

| S.No. | CATEGORY | NO. OF TEACHER | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | F VARIANCE |
|-------|----------|----------------|------|--------------------|----------------|--------------------|------------|
| 01 | Male pupil teacher (Arts) | 420 | 83.19 | 19.87 | 0.969 | 419 | |
| 02. | Female pupil teacher (Arts) | 140 | 80.36 | 21.56 | 1.822 | 139 | 1.183 |
| | TOTAL : | 560 | | | | | |

Score of this Sub-Category is 1.426, is also not significant at 0.05 level.

It means there is certainly not a significant difference in the apptitude of the both sub categories. But male pupil teachers have more positive apptitude towards the Audio-Visual Education than the female pupil teachers. The causes of less use of Audio-Visual materials by female pupil teachers as interpretated previously also got a certainity.

## Male pupil teacher (Science) and
## Female pupil teacher (Science) -

In table (11) the F. Variance of male and female pupil teachers of Science is 1.085. That is not significant at 0.05 level. Their T. Score 0.939 is also not significant at 0.05 level.

It means there is very nominal difference in the apptitude of both Sub Categories. Although both male and female pupil teachers recognised the importance of Audio-Visual aids in Science teaching. Their apptitude got difference due to some external problems. Difference between the Social condition of male pupil teachers and female pupil teachers also done a great job.

# TABLE - 11

TABLE SHOWS THE MEAN, STANDARD DEVIATION, STANDARD ERROR AND F. VARIANCE OF THE APPTITUDE OF MALE PUPIL TEACHERS (SCIENCE)

AND

FEMALE PUPIL TEACHERS (SCIENCE)

| S.No. | CATEGORY | NO. OF PUPIL TEACHER | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | F. VARIANCE |
|-------|----------|----------------------|------|--------------------|----------------|--------------------|-------------|
| 01. | Male Pupil Teacher (Science) | 140 | 81.714 | 21.63 | 1.828 | 139 | 1.085 |
| 02. | Female Pupil Teacher (Science) | 100 | 79.00 | 22.49 | 2.250 | 99 | |
| | TOTAL : | 240 | | | | | |

# TABLE - 12

TABLE SHOWS THE MEAN, STANDARD DEVIATION, STANDARD ERROR AND F. VARIANCE OF THE APPTITUDE OF FEMALE PUPIL TEACHERS (SCINECE)

AND

FEMALE PUPIL TEACHERS (ARTS)

| S.No. | CATEGORY | NO. OF PUPIL TEACHER | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | F. VARIANCE |
|-------|----------|---------------------|------|--------------------|----------------|--------------------|-------------|
| 01. | Female Pupil Teacher (Science) | 100 | 79.00 | 22.49 | 2.25 | 99 | 1.094 |
| 02. | Female Pupil Teacher (Arts) | 140 | 80.36 | 21.56 | 1.822 | 139 | |
| | TOTAL : | 240 | | | | | |

Female pupil teachers (Science) and
Female pupil teachers (Arts) -

In table (12) the F. Variance of female pupil teachers. Science and female pupil teacher arts category is 1.094. The T. Score of this Sub-category is 0.471.

Both the categories of female pupil teachers gave their positive assumptions about the implication of Audio-Visual Education in teacher's training institutions.

Male pupil teachers (Science) and
Male pupil teachers (Arts) -

IN table (13) the F. Variance of Male pupil teacher (Science) and male pupil teachers (Arts) is 1.190. That is not significant at 0.05 level. Their T. Score is 0.743. That is also not significant at 0.05 level. It means that there is not very significant difference in apptitude of both Sub-categories. The causes of less use of Audio-Visual material by male pupil teachers (Science) as interpretated previously also confirmed.

## TABLE - 13

TABLE SHOWS THE MEAN, STANDARD DEVIATION, STANDARD ERROR AND F. VARIANCE OF THE APPTITUDE OF MALE PUPIL TEACHERS (SCIENCE) AND MALE PUPIL TEACHERS (ARTS)

| S.No. | CATEGORY | NO. OF PUPIL TEACHER | MEAN | STANDARD DEVIATION | STANDARD ERROR | DEGREES OF FREEDOM | F. VARIANCE |
|-------|----------|----------------------|------|--------------------|----------------|--------------------|-------------|
| 01. | Male Pupil Teachers (Science) | 140 | 81.714 | 21.63 | 1.828 | 139 | 1.190 |
| 02. | Male Pupil Teachers (Arts) | 420 | 83.19 | 19.870 | 0.969 | 419 | |
| | TOTAL : | 560 | | | | | |

* Significant at 0.05 Level.

## TABLE - 14

TABLE (14) SHOWS THE COMPARATIVE STUDY OF T. SCORE AND F. VARIANCE OF ALL THE SUB-CATEGORIES OF PUPIL TEACHERS AS SHOWN IN THE TABLE NO. 6 to 13

| S.No. | SUB-CATEGORIES OF PUPIL TEACHERS | T. SCORE | F. VARIANCE |
|-------|-----------------------------------|----------|-------------|
| 01. | Male Pupil teacher (Arts) and Femalepupil teacher (Arts) | 1.426 | 1.183 |
| 02. | Male pupil teacher (Science) and Female pupil teacher (Science) | 0.939 | 1.085 |
| 03. | Female pupil teachers (Science) and Female pupil teacher (Arts) | 0.471 | 1.094 |
| 04. | Male pupil teachers (Science) and (Arts). | 0.743 | 1.190 |

## Comparative Study of T. Score and F.Variance of all the Sub-Categories of pupil teachers -

As shown in the Table No. 14 the T. Score of Male pupil teachers (Arts) and Female pupil teachers (Arts) is 1.426 and their F. Variance is 1.183. Both are not significant at 0.05 level. It means both the Categories of pupil teachers show their positive apptitude towards Audio-Visual Education.

Male pupil teachers (Arts) and female pupil teachers (Arts) are recognised and accepted the significance of Audio-Visual Education programme in teachers training Colleges. They both want to spent more money on if and also want expansion of Audio-Visual Education Programme.

The t. Score of Male pupil teacher (Science) and female pupil teacher (Science) is 0.939 and their F. Variance is 1.085. T. Score and F. Variance are not significant at 0.05 level. Male pupil teachers (Science) and female pupil teachers (Science) show their interest in Audio-Visual Education programme slightly difference in the apptitude is due to the some unavoidable external conditions. These conditions had

been described previously by the researcher.

There is also very little difference in the apptitude of female pupil teachers Science and female pupil teachers Arts because there T. Score is 0.471 and F. Variance is 1.094. That is not significant at 0.05 level. It is found in the study if the teachers training colleges spent more amount over Audio-Visual Education programme, then the practice teaching of female pupil teachers becomes more easy and interesting.

It is seen from the data that more than 80% of the colleges operate their Audio-Visual Education Programme at unsatisfactory level, which means they offer only elementary training in Audio-Visual Education neither special nor general at satisfactory level.

It is also seen that no category of pupil teachers is fully agree withall the 60 items of the questionaire, as it was constructed to include the requirements of the most ideal programme in Audio-Visual Education for the sake of investigation. It appeared that it is too early stage for the colleges to seperate such an ideal programme in the prevailing conditions because this movement is still in the infant stage of growth and development in the teachers

training institutions of Uttar Pradesh.

The T. Score of Male pupil teaches Science and male pupil teachers arts in (Table-14) is 0.743 and their F. Variance is 1.190. Both are insignificant on 0.05 level. It means that there is no significant difference in the apptitude of both category about Audio-Visual Education.

Although the male pupil teachers accepted the importance of Audio-Visual Education programme but they also thought that most of the colleges include the topics of introductory nature in theory teaching, operation or handling of projectors, preparation, selection and proper use of simple Audio-Visual materials in class room teaching in the practical training of pupil teachers.

<u>Over all assessment of performance of teachers training
Colleges according to the data received from
Principals/ Heads of the Deptt. lecturers and pupil
teachers of the teachers training Colleges of U.P. -</u>

This study mainly aimed at evaluating critically the Organisation of Audio-Visual Education in teachers training Colleges of Uttar Pradesh. The data was

collected, analysed and interpreted accordingly. The questionaire consists several questions about the objectives of Audi -Visual Education Programme such as Colleges aiming at imparting general training, special training, production of Audio-Visual aids, extension service, research and publication in the field and follow up.

The achievement of the respective objectives on the basis of these Criteria it was found that 55% Principals and Heads of the deptt. and 56% lecturers gave emphasis on this aspect. On the other hand all the categories of pupil teachers gave emphasis on vocational importance of Audio-Visual Education programme. In their view vocational training with the help of Audio-Visual Education should be the first goal of the programme. Compared with the developments in the Universities in Western countries in the field of Audio-Visual Education, the Audio-Visual programme in Uttar Pradesh is still in the initial take-off stage. The fact of the matter is that the process of education is highly related to the Socio-Economic position of the state. There is significant impact of the total social system on the education system and its various phases.

The use of Audio-Visual aids is least in the Uttar Pradesh. Becauseof traditional Societies, static pattern of life and poor media of communications.

The Principals, Head of the Deptt., lecturers and pupil teachers of the training institutions reported curriculum construction in two sense -

(1) Internal Instructional Programme.
(2) Syllabus outlines.

In the first sense curriculum construction generally done by Principals and Head of the deptt. in the most of the training institutions. But in the second sense (Syllabus outlines) University committee of the Board of Studies is reported to be responsible.

It is found from the data that there is an acute shortage of the qualified and experienced staff in the field of Audio-Visual Education Programme. It is also found that the respondents expected the most ideal qualifications and experience for the staff of Audio-Visual Education. But the availability of such qualifications and experience with the present staff seems impossible. It indicates therefore a gap

between the expectations and reality. The Staff in the prevailing conditions may be considered to be under qualified. Looking to their work-load it is found that the staff is more engaged in other work than the work on Audio-Visual Education.

It is also found from the data some topics such as Organisation and administration of Audio-Visual instructional programmes, maintenance of Audio-Visual library, testing the results of Audio-Visual instructions in the class-room, research methodology in Audio-Visual Education, Principles of utilising Socio-drama, role playing and recorded tapes etc. in teaching are taught only in theory by some training institutions of Uttar Pradesh.

Practical training of some items such as (i) writing the script for radio broad cast (ii) press materials (iii) operation and handling of overhead projectors (iv) minor repair of equipments are also neglected by the institutions.

80% colleges are having the following visual and audio-visual aids such as charts, graphs, models, pictures, maps, diagrams, film strips, slides, posters,

specimen, photographs, flash cards, Bulletin boards, sketches and flannel graphs. Only 5% Colleges have pumplets, folders, Cartoons, circular letters, puppets, flipbook, recorded tapes etc.

Research and publication in Audio-Visual education were found to be rare activity with training institutions. This activity is not yet recognised as an integral part of the programme.

Only 10% colleges was found doing appraisal of their training programmes by having follow-up activity.

Hence the main finding is that the Audio-Visual Education in teachers training colleges are under developed in Uttar Pradesh and it is supported both by the data and the logic of socio-economic enviornment of the country.

## Description -

On the basis of interpretation done previously it is found that there is positive relationship between teacher's training programme and Audio-Visual Education Programme. The assumptions of Principals and Head of the Deptt. is significant at 0.05 and 0.01 level. By

the interpretation of data it is found that Principals/ Head of the Deptt. show their positive apptitude towards Audio-Visual Education. The Lecturers of teachers training institutes also show their positive apptitude towards Audio-Visual Education programme. Lecturers gave 60% positive responses towards Audio-Visual Education.

In (1966) George gave conclusion in his study that the use of Audio-Visual material makes teaching efficient. According the study done by Patel, Usha Subbarao (1972) the use of Audio-Visual material brings more good results. Joshi (1979) done survey on the teaching methods and got conclusion that 72% lecturers are interested in the use of Audio-Visual material. This percentage is higher than the present study. Singh (1980) got result of his study that the use of modern techniques in teaching process brings more learning. But the financial hurdles bring difficulty in this process. Very limited number of colleges use radio broadcast for learning. Dr.R.N. Roy (1981) realised the importance of multi-media to the teachers training institutes. This fact is also proved by this study.

Golani (1982) interpretated the apptitude of the Principals and lecturers towards Audio-Visual Education. Some of the important conclusions are -

(1) Schools that are situated in Urban areas have visual materials.

(2) Schools running by rich societies have more Audio-Visual materials.

The results of Golani is also correlated with this study. The responses given in present questionaire is also proved by the conclusions of Golani.

In 1984 **Singh J. and Singh A.K.** analysed the needs of primary school children on the basis of educational television and got 88% positive results from the teachers. **WAIT** (1984) mentioned the importance of Radio and Television in teaching. In his study he found that Children are interested in television programmes and they show change in learning process. He also found that teachers are curious about the use of Audio-Visual materials but the lack of finance is the main hurdle in this way. **Desai** (1985) gave emphasis on the improvement of Science teaching.

Lawrence Staulrow and Daniel Davis (1965) stated that cognitive objectives can be achieved by the use of computer. Kohan (1980) done his study on the computer importance. He got following conclusions in his study

1.  Although the availability of computers is very minimum but there is significant role of computer in the achievement of students.

2.  Computer assisted learning also saves time.

3.  Students also show their positive apptitude towards computer.

Madhumita Bhattacharya (1987) analysed critically the importance of computer and found that the teaching of Chemistry becomes easy by the use of computer in teaching process. The data received from the questionaire of the present study also indicates on this fact.

By the observation of related literature researcher found correlation between the results of previous studies and the present study done by her. Thus the present study is able to fulfill its objectives.

# CHAPTER - 6

## FINDINGS AND SUGGESTIONS

The purpose of this study was to done critical evaluation of the Organisation of Audio-Visual Education in teacher's training programme of Uttar Pradesh. For this purpose two questionaire were developed, one for the Principals/Head of the deptt. and lecturers and second for the pupil teachers of the teacher's training colleges. The data received from the questionaires had a effect on the teaching aspect. On the basis of results hypothesis were tested and conclusions would be find-out.

## Testing of Hypothesis -

The first hypothesis of the study is that - Audio-Visual materials play a vital role in teaching learning situation involving both the teacher and the learner.

To get this objectives the responses of pupil teachers is interpretated by mean, standard deviation, standard error, T. score and also F. Variance.

The apptitude of the Principals/Head of the deptt. is measured by Chi-square or $X^2$. By the interpretation

of data it is clear that Audio-Visual materials had a significant role. By the Audio-Visual Educational equipments more knowledge can be given or got in less time.

The apptitude of the Principals/Head of the deptt. of the male teachers training colleges is 60% and 50% apptitude of the Principals/Head of the deptt. of female teachers training colleges. The percentage of their responses shows significance of Audio-Visual education programme.

There is some difference in the percentage of the responses between male Principals/Head of the deptt. and female Principals/Head of the deptt. This difference is interpretated previously. But it is sure that both male and female Principals/Head of the deptt. show their positive apptitude towards Audio-Visual Education.

The responses of pupil teachers is interpretated by T. Score and confirmed by F. Variance. The pupil teachers were divided into two different category -

(i) On the basis of subject

(ii) On the basis of Sex.

According to the Sex male pupil teacher show more positive apptitude towards Audio-Visual Education than the Female ones. But their T. Score is not significant on 0.05 level it means that there is no significant difference between the apptitude of male and female pupil teachers. They both realize the role of Audio-Visual Aids in training process.

The results of responses of the pupil teachers is interpretated in table No. 6 to 14. The conclusions in short are as follows :-

According the subject category pupil teachers (Arts) show more positive responses than the pupil teachers (Science). This difference is also not significant at 0.05 level.

By the over all assessment of data researcher found that whole sample posses positive apptitude towards Audio-Visual Education. The research work done in past also confirmed this conclusion.

Our constitution has promised to provide equal opportunities to every individual. But in Class-room situation only few students can be benefitted and the

students, who for one or other reasons can not attend the school remain neglected. Our country is still in a developing condition and still a large number of population is living in remote areas and the promise of equalization of education becomes meaningless to them. It is imperative that the Audio-Visual Education programmes should be conceived for development and operation on a massive scale to make it possible for them to contribute to the national goal of achieving Universalisation of education.

## Second Hypothesis -

Financial, administrative and technological problems of training colleges in using Audio-Visual Aids.

The potentiality and importance of Audio-Visual Education programme had been realised and recognised by every respondant. Hence it is desired by all, that teacher should be well equipped with the modern methods of communication process in teaching for better performance in the field of education. But there are some problems in the way of Audio-Visual Education Programme -

According to the data financial and administerial problems are the main hurdles. Principals and Head of the deptt. of the male teachers training colleges gave only 45% responses and female Principals and Head of the deptt. gave only 50% responses. Male Lecturers gave 45% responses and female lecturers gave only 40% responses. Mostly received responses are in the indefinite or disagree category. These percentages are also less than the other aspects of the questionaire. It means Principals and Head of the deptt, had to face financial problems.

Problem of good administration is related with the availability of finance. On the aspect of administration and organisation male principals and Head of the deptt. gave 46% resonses and females gave 44%. The total percentage of responses is 45%. Male lecturers gave 52% percent responses while female lecturers gave 45% responses. The cause of less responses is the financial hurdles that come in the way of Audio-Visual Education Programme.

In India the Central and State Governments have set-up Boards of Audio-Visual Education and have

chalked out interesting programmes for the popularization of teaching aids but the lack of finances is not enabling them to do their best. Thus the second hypothesis is also got significant value by the results received from the data.

## Third Hypothesis -

Comparative study between pupil teachers on the basis of their subject category i.e. Arts and Science.

1. The mean of male pupil teachers arts (83.19) is more than the mean of female pupil teachers arts (80.36) but there T. Score (1.426) is not significant on 0.05 level. It means both the Sub-Category of pupil teachers recognized the importance of Audio-Visual Education Programme.

2. In the Science Category mean of male pupil teachers 81.714 is more than the mean of female pupil teachers 79.00. Their T. Score 0.939 is not significant at 0.05 level. It means this category of pupil teachers also realizes the significance of Audio-Visual Education programme and had a positive apptitude towards Audio-Visual Education.

3.  But in over all assessment arts pupil teachers show more positive responses towards Audio-Visual Education Programme than the Science pupil teachers.

4.  Thus by the full interpretation of data researcher found the more positive apptitude towards Audio-Visual Education programme by male Arts pupil teachers rather than the other Categories of the pupil teachers.

**Fourth Hypothesis -**

Need for great efficiency in developing simple and cheaper Audio-Visual material.

Audio-Visual aids are not a subject but they are means by which a subject can be made more comprehensive and interesting. They bring the past into present. But Audio-Visual Education needs great planning. It is a method of imparting information which is based upon the psychological principle that one has a better conception of the thing. In using Audio-Visual aids teacher should proceed from simple to complex and direct to indirect. Whenever the teacher

can explain the topic by using the black board, chart, model or still picture he need not go in for a film. Teachers should prefer simple indigenous aids to expensive ones.

The third aspect of Questionaire No. 1 is based on the need for developing great efficiency to make cheaper Audio-visual material.

In Audio-Visual Education programme on the aspect of the trained staff and training male Principals and Head of the deptt. gave 45% responses and female Principals and Head of the Deptt. gave 40% responses. The percentage of males is more than the females. In the lecturers category the percentage of males and females is 51%. Both the category of lecturers recognizes the importance of trained staff. On the basis of found data researcher can say that there is greater need of efficiency in developing cheaper Audio-Visual material. Use of cheap Audio-Visual material is a positive aspect. One of the aims of Audio-Visual Education is to use the minimum and the cheapest of the materials to the maximum advantage. So there is need to direct our efforts for the utilization

of ordinary things lying waste around us, shaping them as efficient substitutes for the more expensive apparatus.

So by the above interpretation fourth hypothesis of the Study becomes true that there is need for great efficiency in developing simple and cheaper Audio-Visual material.

## Conclusions -

1. The apptitude of Principals, Head of the Deptt. lecturers and pupil teachers are positive towards Audio-Visual Education programme.

2. The apptitude of Male Principals, Head of the Deptt. and lecturers is more positive than the female principals, Head of the Deptt. and lecturers.

3. Male Principals, Head of Deptt. and Lecturers show more interest about the objectives of Audio-Visual Education than the female Principals, Head of the Deptt. and Lecturers of teachers training Colleges.

4.  On the aspect of Curriculum construction female Principal, Head of the Deptt. and lecturers show more positive apptitude than the male Principals, Head of the deptt. and lecturers.

5.  On the aspect of trained and experienced staff male Principals, Head of the deptt. and lecturers have more apptitude than the female ones.

6.  In the field of financial problems both male and female Principals, Head of the deptt. and lecturers show their minimum interest. It means there are certainly some serious financial problems that have to be faced by teachers training institutions.

7.  On the aspect of Organisation and administration male responded more positively than the female ones.

8.  In the pupil teachers category Male pupil teacher arts shows highest apptitude towards Audio-Visual Education programme.

9.  Arts pupil teachers have more positive apptitude than the Science pupil teachers.

10. The teachers training colleges are in the initial stage in the movement of Audio-Visual Education in different Universities and most of them are not able to fulfill the objectives of training programmes.

11. The curriculum of Audio-Visual education is still in adequate in teachers training colleges. It is neither planned in details nor frequently revised by them.

12. No college have fulfledged staff for Audio-Visual Education.

13. The topics taught in the theory of Audio-Visual Education are of quite elementary or introductory nature. More stress is given on the preparation and use of simple visual aids.

14. The Audio-Visual Education teachers training departments are having some equipments but they are not fully utilized, lack of budget, repairs, maintenance are the main hurdles in full justification.

15. The budget provided for Audio-Visual Education is quite inadequate.

Today the problem is not whether visual aids should have a place in education. This has been recognised long ago. The problem now is that of extending the benefits of these aids to all lecturers and pupil teachers of the teacher's training colleges. The future can be bright if there is proper planning on the part of the Government and co-ordination between producer, teacher and student. Useful and effective aids can be produced after getting the audience reaction and doing research work in the field of Audio-Visual Education programme. A great deal is being done already but a lot more still remains to be done.

Suggestions -

1. An uniform policy should be framed by State and central Government on Audio-Visual Education Programme.

2. Special grant should be awarded by the Universities to develop an Audio-Visual department in the teachers training Colleges.

3. Universities should have prepare a plan for

expansion of training facilities in the field of Audio-Visual Education Programme.

4. Extension services centre should be established in teachers training colleges.

5. The Universities should propose and recommend the proposals for long term loans to the University Grant Commission and State for the Audio-Visual aids and equipments to develop Audio-Visual unit/ department in teachers training colleges.

6. The Present curriculum of Audio-Visual aids should be frequently revised by the board of studies.

7. The Universities should conduct the special courses of high standard for preparing specialists in the educational media.

8. The Universities should gradually established the Audio-Visual service centre for the use of all the departments.

9. The Universities should establish an Audio and Video cassettes and software library with modern and upto date informative technology of

Audio-Visual Education for mass communication.

10. Qualified full time staff for the department/ section/unit should be appointed in Audio-Visual Education.

11. An adequate weightage to be given for Audio-Visual Education in University examinations.

12. An adequate budget to be provided for Audio-Visual Education.

13. Proper care should be taken for units of Audio-Visual Education in teachers training colleges.

14. Provision should be made for field work and off-campus training in Audio-Visual Education during training period.

15. Refresher courses in Audio-Visual Education should also be conducted by the professional Organisation with the collaboration of Universities.

16. Annual exhibition on Audio-Visual Education must be exhibited in each teachers training colleges with the help of progressive professional organisations.

17. Some provision in trainig colleges budget must be their to purchase new audio-Visual aids and for repair and mai.tenance also.

18. Training colleges should depute teachers to join for Summer institutes and refresher courses which are to be organised by any agencies.

19. Annual Conferences and Seminars should be there in the University on latest. information and software technologies in Audio-Visual Education.

20. The Principals should be oriented to the utility and effectiveness of teaching through Audio-Visual aids.

## Limitations -

1. Only questionaire method was adopted to receive relevent data.

2. On the subject category only Science and Arts category is involved in the study. Other categories such as agriculture, commence or electronic is not involved in the present study.

3. Only on the graduation level pupil teachers of training colleges are involved in the study.

4. Due to financial and time limitations researcher limited the study on the six different aspects of Audio-Visual Education Programme.

## Areas for further Research -

1. Studies should be made to explore both the physical and psychological barriers in the full utilization of the available resources in Audio-Visual department in the teachers training college.

2. Critical study of the impact of the Government efforts for the development of Audio-Visual Education.

3. Case studies of successful teachers in class-room teaching through Audio-Visual Aids.

4. Study of the procedure of proper assessment and evaluation of student's work in Audio-Visual Education during the training period in the colleges.

5.  Identification of the financial requirements and cost analysis for operating an effective Audio-Visual Education during training Programme in the prevailing conditions in teachers Colleges in India.

6.  Follow-up studies on the effectiveness of Audio-Visual Education in teachers training programme.

7.  Preparation of standardised criteria or check-list for self appraisal by the deptt./units of Audio-Visual education in the colleges in view of the set objectives of Audio-Visual training programmes.

8.  To study, the comprehensive mass communication (Distance education) in view of modern managerial processes adopted by the other developed open Universities of India and other countries, related with the latest informative Audio-Visual Education.

# S U M M A R Y

**Topic of the Study** -

"Study of the programme of Audio-Visual Education in Teacher's training Colleges in U.P.".

**Investigator** - Smt. Rakhee Chaudhry
M. Ed.

**Supervisor** - Dr. J.L. Verma
M.A., M. Ed., Ph.D.
Bundelkhand College, JHANSI (U.P.)

**Purpose of the Study** -

1. To study theoritical and psychological aspects of Audio-Visual Education in relation to learning.

2. To find out the degree of awareness about the techniques of Utilization of Audio-Visual materials in actual teaching process.

3. To find out the degree of awareness about the utilization of Computers in teachers training Deptt.

4. To evaluate professional readiness needed for improving and revitalizing learning.

5. To enquire about the skills in preparing simple and inexpensive graphic materials.

## Hypothesis of the Study -

1. Audio-Visual materials play a vital role in teaching learning situation involving both the teacher and the learner.

2. Financial, administrative and technological problems of teacher's training colleges in using Audio-Visual aids.

3. Comparative study between pupil teachers on the basis of their subject category i.e. Arts and Science.

4. There is need for great efficiency indeveloping simple and cheaper Audio-Visual materials.

## Method and Procedure -

## Tools :

The descriptive Survey method used for the investigation.

## As a Sample -

|                                       |   |     |
|---------------------------------------|---|-----|
| Affiliated Colleges                   | - | 30  |
| Principals/Heads of the Deptt.        | - | 30  |
| Lecturers Teacher's training Colleges | - | 100 |
| Pupil Teachers                        | - | 800 |

Sample choosed by random sampling method.

## Tools for the Study -

According to the objectives the following tools are used. The investigator prepared questionaires to be administered to -

1.  Principals/Heads of the teacher's training colleges.

2.  Lecturers of the training colleges.

3.  Students undergoing teacher's training (pupil teacher)

## Statistical Analysis -

For the measurement of apptitude of the Principals, Head of the deptt., lecturers and Pupil teachers Statistical method is adopted.

Mean, standard deviation, Standard error, T. Score, F. Variance and Chi-square of the different categories of Principals, Head of the Deptt. lecturers and pupil teachers are found out.

## Results --

The assumptions of Principals/Head of the Department and lecturers (teachers-training colleges) are measured by Chi-square or $X^2$ All the results of their assumptions are given in table No. 4 and 5 in Chapter - 5.

The apptitude of pupil teachers is measured by mean, standard deviation, standard error, T. Score and F. Variance. All

these results are given in table No. 6 to 14 in Chapter - 5.

## Conclusions -

1. The apptitude of Principals, Head of the Deptt., lecturers and pupil teachers are positive towards Audio-Visual Education Programme.

2. The apptitude of Male Principals, Head of the Deptt. and lecturers is more positive than the female Principals, Head of the Deptt. and lecturers.

3. Male Principals, Head of the Deptt. and lecturers show more interest about the objectives of Audio-Visual Education than the female Principals, Head of the Deptt. and lecturers of teachers training colleges.

4. On the second aspect i.e. - curriculum construction female Principals, Head of the deptt. and lecturers show more positive apptitude than the male Principals, Head of the deptt. and lecturers.

5. On the aspect of trained and experienced staff male Principals, Head of the deptt. and lecturers have more apptitude than the female ones.

6. In the field of financial problems both male and female Principals, Head of the deptt. and lecturers show their minimum interest. It means there are certainly some serious financial problems that have to be faced by teachers training institutions.

7. In the pupil teachers category Male pupil teacher arts show highest apptitude towards Audio-Visual Education programme.

8. Arts pupil teachers have more positive apptitude than the Science pupil teacher.

## Suggestions-

1. An uniform policy should be formed by State and Central Government on Audio-Visual Education Programme.

2. Special grant should be awarded by the Universities to develop an Audio-Visual department in the teachers training colleges.

3. The Universities should propose and recommend the proposals for long term loans to the University Grants Commission and State for the Audio-Visual aids and equipments to develop Audio-Visual unit/deptt. in teachers training colleges.

4. The present curriculum of Audio-Visual aids should be frequently revised by the board of studies.

5. Qualified full time staff for the department/section/unit should be appointed in Audio-Visual Education.

6. Refresher courses in Audio-Visual Education should also be conducted by the professional organisation with the collaboration of Universities.

7. Annual conferences and seminars should be held in the University on latest information and software technologies in Audio-Visual Education.

## Limitations -

1. Only questionaire method was adopted to receive relevent data.

2. On the subject category only Science and Arts category is involved in the study. Other Categories such as - agriculture, commerce or electronic is not involved in the present study.

3. Only on the graduation level pupil teachers of training colleges are involved in the study.

4. Due to financial and time limitations researcher limited the study on the six different aspects of Audio-Visual Education Programme.

## Areas for further Research -

1. Studies should be made to explore both the physical and psychological barriers in the full utilization of the available resources in Audio-Visual departments in the teachers training colleges.

2. Critical study of the impact of the Government efforts for the development of Audio-Visual Education.

3. Case studies of successful teachers in class-room teaching through Audio-Visual Aids.

4. Study of the procedure of proper assessment and evaluation of student's work in Audio-Visual Education during the training period in the colleges.

5. To study, the comprehensive mass communication (Distance education) in view of modern managerial processes adopted by the other developed open Universities of India and other countries related with the latest informative Audio-Visual Education.

APPENDIX

# QUESTIONAIRE - 1

## (For Principals/Head of the deptt. and lecturers of Teacher's Training Colleges)

SUPERVISOR

**Dr. J.L. VERMA**
  M.A., M.Ed., Ph.D.
Deptt. of Teachers Training
Bundelkhand College,
JHANSI.

INVESTIGATOR

**Km. RAKHEE CHAUDHRY**
M.Ed.

### Please fill-up the blanks.

Name _____ Sex _____

Designation _____

Name of Institution : _____

## Instructions

1.  Present Questionaire consists the statements on Audio-Visual Education. If you are agree with them then put ( ✓ ) in the agree column. If you are disagree with them then put ( ✓ ) in the disagree column. It is also done with the column indefinite.

2.  There is no time limit to fill the questionaire.

3.  You can recorrect your response by putting (X) on the previous one.

4.  Your responses will be used only for research work. So please answer the questions without any hesitation.

QUESTIONAIRE NO. 1 -

(For Principals/Head of the Department and Lecturers)

A)    Objectives (Audio-Visual Education) -

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 01. | In Modern Education Audio-Visual education has an identical role. | | | |
| 02. | In teachers training Colleges their is an important role of Audio-Visual Education. | | | |
| 03. | Audio-Visual Education can achieve cognitive Objective of Education. | | | |
| 04. | Audio-Visual Education can achieve affective objective of Education. | | | |
| 05. | Audio-Visual Education can achieve psycho-motor objective of Education. | | | |
| 06. | Vocational Education can be given more effectively by Audio-Visual aids than the traditional Education. | | | |
| 07. | Vast country like India which have very large population, development of Audio-visual Education is necessary. | | | |
| 08. | Audio-Visual Education is very useful media for formal Education. | | | |
| 09. | Audio-Visual Education is very useful to achieve the objectives of informal Education. | | | |
| 10. | Audio-Visual Education is the model training method to educate masses. | | | |

## B) <u>Curriculum Construction</u> (Audio-Visual Education)

| S.No. | S T A T E M E N T | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 01. | In teachers training Colleges Audio-Visual Education Programme is according to the Curriculum. | | | |
| 02. | Audio-Visual Education reflects light on all the aspects of teachers training curriculum. | | | |
| 03. | In teachers training programme Audio-Visual aids or materials are used according the teaching methods. | | | |
| 04. | Research techniques are used in Audio-Visual Education. | | | |
| 05. | Audio-Visual Education can give more knowledge in less time. | | | |
| 06. | In Audio-Visual Education Software and hardware approach are used according the curriculum. | | | |
| 07. | Guidance and Counselling is necessary for Audio-Visual Education. | | | |
| 08. | University Grants Commission and Indira Gandhi open University plays an important role in Audio-Visual Education Programme. | | | |
| 09. | In the Organisation of Audio-Visual Education Programme democratic method is used. | | | |
| 10. | In the Construction of Curriculum teachers and Student involvement is useful. | | | |

## C) Staff and Training (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | Trained lecturers give training to the pupil teachers in teachers training Colleges. | | | |
| 02. | General training about Audio-Visual Education is available for all the trainees. | | | |
| 03. | Special training facility of Audio-Visual Education is also available in College. | | | |
| 04. | Additional Staff is available for operation and maintenance of the different equipment. | | | |
| 05. | Off Campus training i.e. field trips, visits to museum, fairs, workshops etc. have a significant role in training. | | | |
| 06. | Specialized staff is available to the lecturers for making materials about planning, evaluation and instruction. | | | |
| 07. | Training is available for preparing college broad-casting programmes. | | | |
| 08. | Continuous evaluation procedure is adopted to evaluate specialized or trained staff. | | | |
| 09. | For preparing indiginous and cheap instructional materials proper training facility is available. | | | |
| 10. | Qualification and experience is considered while making appointments of staff. | | | |

## D) Financial Problems- (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 01. | College have special grant for convening Audio-Visual Education. | | | |
| 02. | College have financial assistance for the replacement of old equipments into new one. | | | |
| 03. | College have the financial aid for service charges for equipments and other accessories. | | | |
| 04. | Colleges fellsthe financial burden for research and publication in Audio-Visual Education. | | | |
| 05. | Additional financial aid is arranged for Audio-Visual library by the institution. | | | |
| 06. | There is proper Co-ordination between planner, staff and trainees. | | | |
| 07. | The College have sufficient finance for the purchasing of different equipments. | | | |
| 08. | College pays freight charges for motion pictures, film stirps etc. | | | |
| 09. | The college gives special allowances for trained teachers and Off-Campus activities on Audio-Visual Education. | | | |
| 10. | For the development of Audio-Visual Education programme, research and publication activity is taken seriously by the college. | | | |

## E) Organisation and Administration (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | Lecturers used Audio-Visual Material in sufficient quantity in training process. | | | |
| 02. | The college adopts different methods in the Organisation of Audio-Visual Programme. | | | |
| 03. | College have Audio-Visual Material in sufficient quantity according to the curriculum. | | | |
| 04. | College have the interference of Principal or other authorities in Audio-Visual Education. | | | |
| 05. | Institution have separate Deptt. for the extension of Audio-Visual Education. | | | |
| 06. | Institution have the air-conditioned room facility for computer and other expensive equipments. | | | |
| 07. | Institution have organised the seminars on Audio-Visual Education. | | | |
| 08. | Institution have the problem of electricity for operating T.V., Computer and other equipments. | | | |
| 09. | Institution have the facility to publish news and catlogs of materials of Audio-Visual Education. In which it is mentioned whether it have procured by purchase, by loan, by cash or rental basis. | | | |
| 10. | Institution have the sufficient literature about teaching and research on Audio-Visual Education. | | | |

## F) Computer - (Audio-Visual Education)

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 01. | Computer Education is essential for teachers training Institutions. | | | |
| 02. | By the use of computer teaching become more efficient. | | | |
| 03. | Computer education in teachers training Colleges is given by trained staff. | | | |
| 04. | In institution every pupil teacher have the facility to work on separate computer. | | | |
| 05. | Institution give sufficient time incollege time table for computer education. | | | |
| 06. | Institution have full literature about computer eudcation. | | | |
| 07. | Institution have full assistance about guidance and counselling of computer education. | | | |
| 08. | Computer simplifies the study of language, science and social aspects. | | | |
| 09. | Your institution have the financial aid for the purchase and maintenance of Computer. | | | |
| 10. | Computer is used as the most important means of mass communication. | | | |

## QUESTIONAIRE - 2

### (For pupil teachers of Teacher's training Colleges)

SUPERVISOR                                    INVESTIGATOR

Dr. J.L. VERMA                                Km. RAKHEE CHAUDHRY
     M.A., M.Ed., Ph.D.                       M. Ed.
Deptt. of Teachers Training
Bundelkhand College,
JHANSI.

Please fill up the blanks.

Name _____Subject category_____ ˏ Arts/Science

Sex _____Male/Female.

Name of Institution : _____

### Instructions

1.  Present Questionaire consists the statements on Audio-Visual Education. If you are agree with them then put ( ✓ ) in the agree column. If you are disagree with them then put ( ✓ ) in the disagree column. If you are neutral with any statement then put ( ✓ ) in the indefinite column.

2.  There is no time limit to fill the questionaire.

3.  Please read carefully the statements and then give the answer.

4.  You can recorrect your response by putting (X) on the previous one.

5.  Your responses will be used only for research work. So please answer the questions without any hesitation.

| S.No.<br>क्र0 सं0 | S T A T E M E N T<br>कथन | Agree<br>सहमत | Indefinite<br>तटस्थ | Disagree<br>असहमत |
|---|---|---|---|---|
| 01. | Audio-Visual Education can achieve cognitive, affective and psycho-motor objectives of Education.<br><br>श्रव्य दृश्य शिक्षा द्वारा शिक्षा के ज्ञानात्मक भावात्मक एवं क्रियात्मक उद्देश्यों की प्राप्ति की जा सकती है. | | | |
| 02. | Audio-Visual Education is a model system to educate Masses.<br><br>श्रव्य दृश्य शिक्षा जन–समूह को शिक्षा देने के लिए आदर्श व्यवस्था है. | | | |
| 03. | Vocational education can be given More effectively by Audio-Visual Education than the traditional method.<br><br>श्रव्य दृश्य शिक्षा के माध्यम से व्यवसायिक शिक्षा नियमित शिक्षा की अपेक्षा अधिक प्रभावशाली ढंग से दी जा सकती है. | | | |
| 04. | Audio-Visual Education covers all the aspects of teachers training.<br><br>श्रव्य दृश्य शिक्षा शिक्षक प्रशिक्षण के समस्त पहलुओं पर प्रकाश डालती है. | | | |
| 05. | Extension Deptt. in the College gives the financial help for Audio-Visual Education.<br><br>महाविद्यालय में प्रसार सेवा विभाग द्वारा श्रव्य दृश्य शिक्षा हेतु वित्तीय सहायता दी जाती है. | | | |

| S.No. | S T A T E M E N T | Agree | Indefinite | Disagree |
|-------|-------------------|-------|------------|----------|
| 06. | College have sufficient material for Audio-Visual Education. महाविद्यालय में प्रचुर मात्रा में श्रव्य दृश्य शिक्षा हेतु सामग्री उपलब्ध होती है. | | | |
| 07. | The use of Audio-Visual material, the education process become more scientific and interesting. श्रव्य दृश्य सामग्री के उपयोग से शिक्षा प्रक्रिया वैज्ञानिक एवं मनोरंजक हो गयी है. | | | |
| 08. | Audio-Visual Education is more beneficial in distant areas which have no other means of eudcation. दूर–दराज के ग्रामीण क्षेत्रों में जहाँ अन्य शिक्षा के साधनों का अभाव है, श्रव्य दृश्य शिक्षा अति उपयोगी है. | | | |
| 09. | The Development of Audio-Visual Education is essential to educate the vast masses of India. भारत की विशाल जनसंख्या को शिक्षित करने के लिए श्रव्य दृश्य शिक्षा का विकास आवश्यक है. | | | |
| 10. | Audio-Visual Education is very useful in formal and informal education. श्रव्य दृश्य शिक्षा औपचारिक तथा अनौपचारिक शिक्षा के लिए अत्यन्त उपयोगी है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 11. | The programme broadcast by All India Radio and telecast by Doordarsan for U.G.C. and IGNOU are useful for teachers training. विश्वविद्यालय अनुदान आयोग एवं इन्दिरा गाँधी राष्ट्रीय मुक्त विश्वविद्यालय के लिए आकाशवाणी एवं दूरदर्शन द्वारा प्रसारित कार्यक्रम प्रशिक्षण की दृष्टि से उपयोगी हैं. | | | |
| 12. | Audio-Visual Education is given proper time in college time table. श्रव्य दृश्य शिक्षा के लिए महाविद्यालय की समय सारिणी में उपयुक्त समय दिया गया है. | | | |
| 13. | Hardware and software approach can easily used in communication devices. सम्प्रेषण विधियों में हार्डवेयर तथा सॉफ्टवेयर उपागमों का सरलता से प्रयोग किया जा सकता है. | | | |
| 14. | Proper guidance and counselling is given for Audio-Visual Education. श्रव्य दृश्य शिक्षा हेतु समुचित निर्देशन एवं परामर्श दिया जाता है. | | | |
| 15. | Audio-Visual Material is used according to your need and self will. श्रव्य दृश्य सामग्री का प्रयोग आप आवश्यकता पड़ने पर स्वेच्छानुसार करते हैं. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 16. | Audio-Visual equipments saves the time, labour and energy.<br><br>श्रव्य दृश्य सामग्री के प्रयोग से समय श्रम एवं शक्ति की बचत होती है. | | | |
| 17. | Audio-Visual Education is helpful for developing interest among students to their subjects.<br><br>श्रव्य दृश्य शिक्षा छात्रों में विषय के प्रति रुचि विकसित करने में सहायक है. | | | |
| 18. | Audio-Visual Programme makes lesson simple and easy to learn.<br><br>श्रव्य दृश्य कार्यक्रम पाठ को सरल बनाकर उसे याद करना आसान बनाता है. | | | |
| 19. | Audio-Visual Education has the important effect on the learning process.<br><br>श्रव्य दृश्य शिक्षा का अधिगम प्रक्रिया पर उत्तम प्रभाव पड़ता है. | | | |
| 20. | General Principles is adopted for the preparation of Audio-Visual Material.<br><br>श्रव्य दृश्य सामग्री के तैयार करने में सामान्य सिद्धान्तों को अपनाया जाता है. | | | |
| 21. | College have the facility for general training in Audio-Visual Education.<br><br>महाविद्यालय में श्रव्य दृश्य शिक्षा के सामान्य प्रशिक्षण की व्यवस्था है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 22. | Use of Audio-Visual Equipments can control and change the behaviour. <br><br> श्रव्य दृश्य उपकरणों के प्रयोग से व्यवहार को नियन्त्रित एवं परिवर्तित किया जा सकता है. | | | |
| 23. | Use of Audio-Visual Material makes the teaching more practical. <br><br> श्रव्य दृश्य सामग्री के प्रयोग से शिक्षा को अधिक व्यवहारिक बनाया जा सकता है. | | | |
| 24. | The Audio-Visual aids save time and make learning solid and durable. <br><br> श्रव्य दृश्य सामग्री समय बचत के साथ-साथ अधिगम प्रक्रिया को भी ठोस एवं स्थायी बनाती है. | | | |
| 25. | Audio-Visual Education is helpful to improve testing, Organisation, Classification and research attitude. <br><br> श्रव्य दृश्य शिक्षा अनेक कुशलताओं जैसे – परीक्षण, संगठन, वर्गीकरण और अन्वेषणीय प्रवृत्ति को संवारने में सहायक है. | | | |
| 26. | The demonstration is given by trained, staff about the use of Audio-Visual material. <br><br> श्रव्य दृश्य शिक्षण से सम्बन्धित सामग्री के प्रयोग करने के लिए प्रदर्शन प्रशिक्षित व्यक्तियों द्वारा किया जाता है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 27. | College have full arrangement of training for the repairing of equipments. उपकरणों की मरम्मत करने के लिए प्रशिक्षण की समुचित व्यवस्था है. | | | |
| 28. | College provides special training in Audio-Visual Education. महाविद्यालय में श्रव्य दृश्य शिक्षा में विशिष्ट प्रशिक्षण दिया जाता है. | | | |
| 29. | Audio-Visual teaching have interference by principal or other authorities. श्रव्य दृश्य शिक्षण कार्यक्रम में प्राचार्य तथा अन्य व्यक्तियों का हस्तक्षेप होता है. | | | |
| 30. | College have the facility for the training of hardware and software approach. महाविद्यालय में हार्डवेयर तथा सॉफ्टवेयर उपागम के प्रशिक्षण की सुविधा है. | | | |
| 31. | Special financial aid is required for Audio-Visual Education. श्रव्य-दृश्य शिक्षा के लिए विशेष आर्थिक सहायता की आवश्यकता है. | | | |
| 32. | Training is must for the preparation of text books and short notes books about Audio-Visual Education. श्रव्य दृश्य शिक्षा के विषय पर पाठ्य पुस्तकों और संक्षिप्त पाठ्य पुस्तकों को तैयार करने में प्रशिक्षण जरूरी है. | | | |

| S.No. | S T A T E M E N T | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 33. | Required information about the Audio-Visual material and equipments have received by books, news-papers, letter, poster, folder or by summarised news.<br><br>श्रव्य दृश्य सामग्री और उपकरणों के सम्बन्ध में आवश्यक सूचना प्रकाशित पुस्तकों, समाचार पत्र-पत्रिकाओं, पोस्टर, फोल्डर या संक्षिप्त समाचार द्वारा प्राप्त होती है. | | | |
| 34. | College have the additional staff for the use of Audio-Visual material.<br><br>श्रव्य दृश्य सामग्री के प्रयोग हेतु अतिरिक्त स्टॉफ की महाविद्यालय में व्यवस्था है. | | | |
| 35. | Proper training facility is available for the development and design of model classroom with indiginous and cheap instructional materials.<br><br>आदर्श कक्षा के विकास और डिजाइन में स्वदेशी और सस्ती अनुदेशन सामग्री के प्रशिक्षण की सुविधा है. | | | |
| 36. | College have the air-conditioned Room for computer and other electronic equipments.<br><br>महाविद्यालय में कम्प्यूटर एवं विद्युत उपकरणों के लिए वातानुकूलित –कक्ष की व्यवस्था है. | | | |
| 37. | College have the proper-room or laboratory for the use of Audio-Visual Equipments.<br><br>श्रव्य दृश्य उपकरणों को प्रयुक्त करने के लिए सुव्यवस्थित कक्षा एवं प्रयोगशाला की सुविधा है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 38. | Institution gives the financial help for the Maintenance and transportation of Audio-Visual equipments. <br><br> श्रव्य दृश्य उपकरणों के रख-रखाव तथा लाने ले जाने के लिए संस्था में वित्तीय सहायता प्राप्त है. | | | |
| 39. | Institution gives the financial help for the manufacturing of Audio-Visual material. <br><br> श्रव्य दृश्य सामग्री निर्मित करने के लिए संस्था वित्तीय सहायता प्रदान करती है. | | | |
| 40. | Institution gives the financial help for the purchase of equipments, their replacement and service or freight charges. <br><br> उपकरणों के क्रय हेतु उनके बदलने के लिए एवं सर्विस व्यय या भाड़ा चुकाने हेतु संस्था वित्तीय सहायता प्रदान करती है. | | | |
| 41. | The literature about Audio-Visual education is available. <br><br> श्रव्य दृश्य शिक्षा से सम्बन्धित साहित्य उपलब्ध है. | | | |
| 42. | Institution have the facility to publish catalogues of Audio-Visual Materials. <br><br> संस्था में श्रव्य दृश्य सामग्री से सम्बन्धित सूची-पत्र प्रकाशित करने की व्यवस्था है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 43. | Institution have the facility to publish small news items and news articles about Audio-Visual Education. संस्था में श्रव्य दृश्य शिक्षा से सम्बन्धित संक्षिप्त समाचारों और समाचार लेखों को प्रकाशित करने की सुविधा है. | | | |
| 44. | Seminars an Audio-Visual Education are organised among lecturers, Principals and pupil teachers. शिक्षकों, प्रधानाचार्यों एवं छात्राध्यापकों के मध्य श्रव्य दृश्य शिक्षा पर सेमिनार आयोजित किये जाते हैं. | | | |
| 45. | Institution gives the facility of Electricity, battery, Gas, petrol or generator to operate the Machines. संस्था मशीनों के संचालन के लिए विद्युत, बैटरी, गैस, पैट्रोल या जैनरेटर की सुविधा प्रदान करती है. | | | |
| 46. | Audio-Visual aids are new Media of Communication. श्रव्य दृश्य सहायक सामग्री सम्प्रेषण का आधुनिक माध्यम है. | | | |
| 47. | Teaching programme of Audio-Visual Education have the good administration and organisation. श्रव्य दृश्य शिक्षा का शैक्षिक कार्यक्रम का प्रशासन एवं संगठन उत्तम है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|---|---|---|---|---|
| 48. | Lecturers got assistance in planning, evaluation and to prepare instructional material about Audio-Visual Education. <br><br> श्रव्य दृश्य शिक्षा में शिक्षकों को नियोजन मूल्यांकन एवं अनुदेशन सामग्री को तैयार करने में सहायता दी जाती है. | | | |
| 49. | The College have the facility of Audio-Visual Library. <br><br> महाविद्यालय में श्रव्य दृश्य पुस्तकालय की सुविधा प्राप्त है. | | | |
| 50. | The research facility is available in Audio-Visual Education. <br><br> श्रव्य दृश्य शिक्षा के क्षेत्र में शोधकार्य की सुविधा है. | | | |
| 51. | Computer simplifies the study of language, Science and Social aspects. <br><br> कम्पयूटर ने भाषा, विज्ञान और सामाजिक अध्ययन को सरल बना दिया है. | | | |
| 52. | The Computer brings effective and rapidness in teaching process. <br><br> कम्पयूटर से शिक्षण-प्रक्रिया में अधिक कुशलता एवं त्वरितता आती है. | | | |
| 53. | The computer education is given by trained staff. <br><br> कम्पयूटर की शिक्षा प्रशिक्षित व्यक्तियों द्वारा दी जाती है. | | | |

| S.No. | S T A T E M E N T | Agree | Indefinite | Disagree |
|-------|-------------------|-------|------------|----------|
| 54. | The use of Computer is helpful to achieve the good results in education.<br><br>कम्पयूटर का प्रयोग उत्तम शिक्षा की पूर्ति में सहायक है. | | | |
| 55. | The use of computer as multimedia is very essential in teacher's training.<br><br>शिक्षक प्रशिक्षण में बहु-संख्यक माध्यम के रूप में कम्पयूटर का प्रयोग आवश्यक है. | | | |
| 56. | Computer makes the learning process easy and interesting.<br><br>कम्पयूटर ने अधिगम प्रक्रिया को सरल व रोचक बना दिया है. | | | |
| 57. | Institution gives full assistance about guidance and counselling of computer education.<br><br>कम्पयूटर शिक्षा के लिए उचित परामर्श एवं निर्देशन की सुविधा संस्था द्वारा प्राप्त है. | | | |
| 58. | Every pupil teacher have the facility to work on separate computer.<br><br>कम्पयूटर पर कार्य करने की प्रत्येक छात्राध्यापक को व्यक्तिगत तौर पर सुविधा प्राप्त है. | | | |

| S.No. | STATEMENT | Agree | Indefinite | Disagree |
|-------|-----------|-------|------------|----------|
| 59. | Institution gives sufficient time in college time-table for computer education.<br><br>कम्पयूटर शिक्षा के लिए संस्था द्वारा महाविद्यालय समय-सारिणी में समुचित समय दिया जाता है. | | | |
| 60. | Institution have the financial aid for the purchase and maintenance of computer.<br><br>कम्पयूटर के क्रय एवं रख-रखाव हेतु संस्था को आर्थिक सहायता प्राप्त है. | | | |

# BIBLIOGRAPHY

01. AGRAWAL J.C.,        -  'Educational Research - An Introduction', Arya Book Depo, New Delhi 1971.

02. ANAND S.P.,         -  'University without Walls', Vikas Publishing House Pvt. Ltd, New Delhi 1972

03. ALTER HENRY C,      -  'Of messages and media', 'Teaching and Learning by public Television', Centre for the study of liberal education of adults, Syracuse University, Syracuse, New-York 1968.

04. 'Audio Visual Education' (Magazines) National Institute of Audio-Visual Education Government of India, New-Delhi.

05. ALKARA JACAB,       -  'Non formal Education: What and Why ? Education Quarterly Vol. 30 No. 2, 1978.

06. AKER GEORGE F.,     -  'Adult Education Procedures, Methods and Techniques. Library of Continuing Education, Syracuse University Syracuse, New-York 1965.

07. ANSARI N.A.         -  'Learning Materials for frames functioned literacy programme in India, A review, Indian Journal of Adult Education Vol. 37 No. 7, 1976.

08. BEST, JOHN, W.      -  'Research in Education, Engla Wood Cliffs N.J. The Prentice Hall, 1959.

09. BROWN JAMES W. & THORTEN JAMES W. Jr. College Teaching, New-York. Mcgrow Hill Book Company, 1960.

10. BROWN JAMES W.     -    Audio-Visual Instruction Materials and Methods, New-York, Mcgrow Hill book Company 1959.

11. BABCOCK CHESTER, - "Evaluating Educational Innovations" Audio-Visual Instruction, May, 1964.

12. BHOLA H.S.     - · Audio-Visual material for social education. Indian Journal of Adult Education Vol. 20, No. 3, 1959.

13. BUCH M.B.     - Survey of Research in Education. P.A.S.E.M.S.U. Baroda 1972.

14. BUCH M.B.     - Second Survey of Research in Education, Society of educational research and development, Baroda 1979.

15. BUCH M.B.     - Third Survey of Research in Education, Society of Educational research and development Baroda. (1981)

16. BUCH M.B.     - Fourth Survey of Research in Education Vol. 1 and 2, NCERT published at the publication department by the secretary Arvind Marg, New-Delhi. (1982)

17. CHAKRABORTI, S.K.     - Audio-Visual Education in India, Calcutta. The Oxford Book & Stationary Company, 1961.

18. CHANDIRAM GITA — Social education through teleclubs Success or Failure ? Vidura Vol. II, No. 4, 1974.

19. CHIB S.S. — Teaching by Correspondence in India, light and life publishing, New-Delhi 1978

20. DALI EDGER, — Audio-Visual Methods in Teaching, Henry Holt and Company, 1959.

21. DECCECO JOHN. P. — The psychology of learning and instruction, Prentice Hall of India Pvt. limited, New-Delhi 1977.

22. DIGHE ANITA — Use of radio and television in non-formal education. Indian Journal of Communication Arts No. 3, 1975.

23. ERICKSON, C.W.G. — Administering Audio-Visual Services, New-York. The Mac Millan Company, 1959.

24. GUILFORD J.P. — Psychometric Methods, Mcgrow Hill book Company, New-York 1956.

25. GARRET HENRY E. — Statistics in psychology and education fourth edition 1953. Reprint October in the United States of America.

26. GOOD AND HALT — Methods in Social research, Mcrow Hill book Company, 1952.

27. GUPTA L.N. — Linking adult education with life. Teacher today Vol. 14, 1977.

28. GUPTA N.R.     -   Organisation of adult literacy programme Indian Journal of Adult Education Vol. 29, 1968.

29. GUPTA N.R.     -   Work based literacy (Banwasi Sewa Ashram Project, Govindpur) Indian Journal of Adult Education Vol. 34, 1973.

30. C.V. GOOD     -   Dictionary of Education, U.S.A. (1985)

31. GORE M.S.     -   Education and Modernisation in India, Rawat Publications Jaipur, 1982.

33. FRANCIS, W. NOEL   -   Audio-Visual Materials of Instruction, Chicago. The National Society for the Study of Education, 1949.

34. BROWN JOHNS     -   Audio-Visual materials and methods, Mcgrow Hill Book Co., 1959.

35. BHATTACHARYA MADHUMITA     -   The use of Computer is an instructional tools for teaching chemistry New-Delhi, 1987.

36. MISHRA D.P.     -   To compare effects of ETV programme and conventional teaching on achievement and attitude, Punjab 1983.

37. MOHANTE J. AND GIRI A.P.     -   A study on educational broad-cast programmes. Directorate of higher education, Orrisa 1976.

38. RAO L.N.           -   A study of factors influencing effective use of Audio-Visual equipment and materials in class teaching, Ph. D. Education 1984.

39. DHAMIJA. N.        -   A comparative study of the effectiveness of three approaches of instructions Conventional Radiovision and Modullar-Approach on achievement of students in Social studies, Ph.D. education, Kurukshetra Uni., 1985.

40. NEW EDUCATION      -   1966-68, Education Ministry, New-Delhi.
    POLICY.

41. NAGARJUNA B.S.     -   School broad-casting utilization by High
    AND USHA               School in Banglore District I.S.E.C.
    RAMKUMAR               Banglore, 1983.

42. National Policy of Education 1986, Programme of action Ministry of human resource development. Govt. of India, 1986

43. PANDEY S.K.        -   The economics of Correspondence education in India, Ph.D. thesis, Meerut Univ. 1980

44. BASU M.K.          -   Effectiveness of multimedia programmed materials in the teaching of Physics Ph.D. Thesis, Calcutta Univ., 1981.

45. WALKER PHILIP      -   Computer Assisted learning in Singapore, British General of Educational Technology Oct., 1988.

46. MATHUR J.C.       - The use of Audio-Visual Media for the education of adults in the changing world, Indian General of adult education Vol. 22 No. 6, 1961.

47. MEHTA T.S., PARIKH B.A. AND SAXENA R.S. (EDITOR), National Conference on population - education problems of implementations, New-Delhi, NCERT, 1972.

48. UNESCO BULLETIN - Development of Educational technology in Japan Vol. 6 Sep. 1990.

49. SHARMA J.N.       - 'Audio-Visual Education in India today' Report on proceding of the all India teachers Conference on audio-visual education, New-Delhi, Ministry of Education, Govt. of India, 1957.

50. National policy of education 1986. Ministry of human resources, New-Delhi.

51. REPORT OF THE NCERT       - 'Workshop on Computer literacy 21-27 March, 1984.

52. SEVENTH FIVE YEAR PLAN       - 'Planning Commission, Ministry of human resources New-Delhi.

53. CHALLENGES OF EDUCATION       - Ministry of Education New-Delhi Aug. 1985

54. SETH INDU       - A study of the effectiveness of educational television on the educational development of primary school children Ph.D., M.S.U. 1983.

55. SINGH VIRPAL     -   Education of teachers for rural schools in the light of education policy, Paper presented at national conference of new education policy held at Hindu College, Moradabad.

56. Directory of audio-visual equipment and materials C.I.E.T., New-Delhi, 1985.

57. Workshop on preparation of low cost teaching aids for rural primary schools. Deptt. of teaching aids, NCERT, New-Delhi, 1979.

58. SHARMA R,A.     -   Advanced Educational Technology, Eagle books International, Meerut Cantt. 1993.

59. HARRISON     -   "Annual Audio-Visual Aid Conference 1963" Visual Education August/September 1963.

60. KALLY THOMAS     -   A history of adult education in Great Britain, Liverpool University Press, Liverpool, 1962.

61. JAYAGOPAL, R.     -   Universities and adult education University News Vol. 16, 1978.

62. ROGERS, JENNIFEE   -   Adult learning, open University Press, New-York, 1975.

63. S. N. RANADE     -   Role of Universities in cradication of illiteracy. India Journal of Adult education Vol. 28.

64. MATHUR J.C.    —  The use of audio-visual media for the education of adults in the Changing world. Indian Journal of Adult-Education Vol. 22, 1961.

65. MAITRA, SATYEN  —  Organising of non-formal education programmes, Indian Journal of Adult Education.

66. SOHAN SINGH    —  Learning to read and reading to learn: An approach to a system of literacy instruction. International Institute for Adult literacy Methods. Tehran and Hulton Educational Publications, 1976.

67. UNESCO   ·      —  Preparing teachers for education in rural development: A hand-book, Unesco, Bangkok 1977.

68. WEAVER G.G. AND  —  Visual aids, their construction and use, BOLLINGER W.E.      New-York D. Vau. Nostrared and Co. 1963.

69. YADAV D.P.      —  New trends in adult Education Kurukshetra, 1974.

70. WAIT C.V.       —  A study of Audio-Visual programmes in Selected teachers Colleges in U.S.A. for purpose of identifying and describing some effective administrative patterns. Doctioral thesis, Indian University 1953.

71. Br D'SQUZA E.S. —  A Text Book on computer literacy, S.K.W. Software Pvt. Ltd., New-Delhi, 1990.